The OIL WEEKLY

10¢ A COPY

Exclusively Devoted To The Production and Transportation of Oil and Gas

December 30, 1927 Volume 48. No. 2

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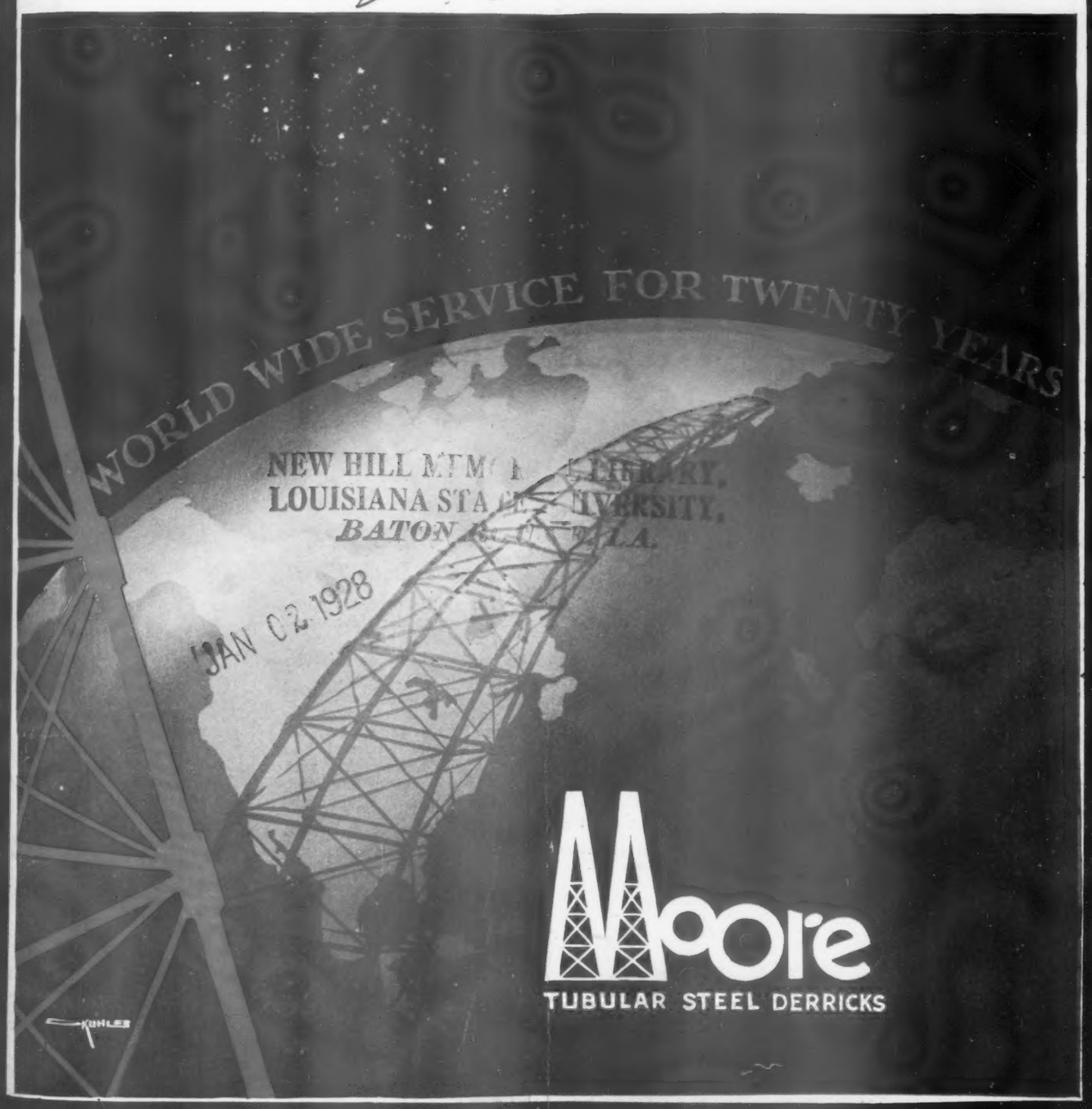


DUNN
DUNN
Dunn Safety Elevators
The "Rotary Flyer"
Double-Door Type
This is a top view of the Dunn Super-Safety "Flyer" Type Elevator. Note the position of the two hinge pins in direct parallel, both horizontally and vertically, with the links and the load. Absolutely no spreading strains are possible. When under load the weight of the string forces the two doors against the pipe, relieving the latch of all strain.
The doors are geared together and the center section, or body, gears the elevator to the pipe.
It is impossible for this elevator to open, or be opened, under any circumstances, while the elevator is carrying the load, but when relieved of the load, it can be opened and closed easily and quickly with a single movement of one hand, as the latch and handle are combined.
Supplied in all rotary drill pipe, casing and tubing sizes. Any size shipped on approval.
DUNN
MANUFACTURING COMPANY
OXNARD, CALIFORNIA
Mid-Continent Branch Warehouse - 25 E. Archer St. Tulsa, Okla.
Export Sales Office ..... 150 Broadway, New York City
DONE SAFELY

The OIL WEEKLY. Issued weekly by the Gulf Publishing Co., 3301 Buffalo Drive, Houston, Texas. Subscription price $1.00 per year; 10 cents per copy. Entered as second-class mail matter December 23, 1916, at the post office at Houston, Texas, under act of March 3, 1879.

IN the field of *transportation* nothing indicates progress more clearly than the time required for a message to travel from New York to Boston: In 1789, by coach, 7 *days*; in 1927, by air mail, 9 *hours*.

In the field of *oil-industry pumps*, nothing indicates progress more clearly than a comparison of present-day models with those in use before GASO entered the field.

GASO Pumps are unmatched for oil-industry service because they are designed exclusively for oil-industry use. The GASO organization lives in the heart of the industry; knows the conditions under which the pumps must operate; concentrates its energies on the fulfillment of oil-industry needs.

Our 64-page catalog will be mailed on request.

GASO PUMP & BURNER MFG. CO.
Tulsa, Oklahoma

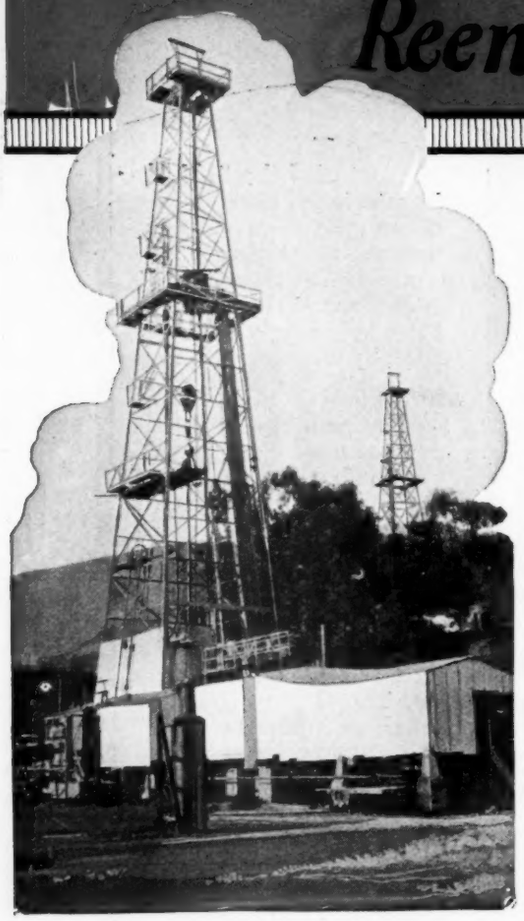
GASO GEAR-DRIVEN PUMPS
An Important Factor In Gaso Leadership

These pumps are carefully designed, strongly made and thoroughly inspected before shipment. No. 501 [at left] is a Horizontal Duplex Piston Pump designed for 200 to 800 lb. working pressure. It has large, direct, unobstructed fluid passages and valve areas.

No. 508 [at right] is an interchangeable liner type of Gaso Duplex Piston Pump. Quickly changeable from large-capacity, low-pressure service to small-capacity, high-pressure service. Has fewer but stronger parts.

GASO PUMPS
for every oil industry need

When You've Finished Making Hole Move Your "IDECO" Reenforcings to the Next

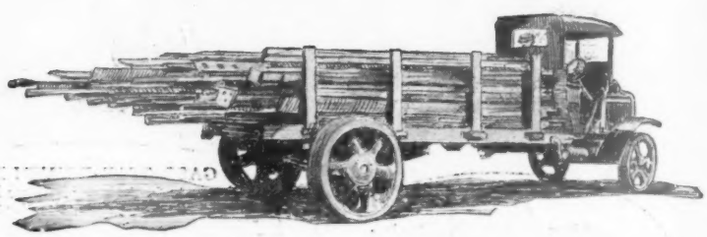


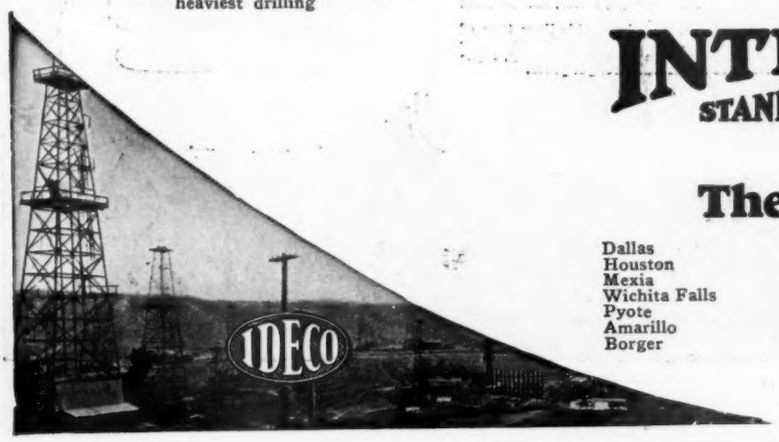
Ideco Steel Derricks have many advantages over other types of rigs on the market, but here is one of the most striking.

The complete patented "Ideco" Derrick comes equipped with Re-enforcing Members which are bolted to the legs, forming a column which more than doubles the strength—a precaution against the vibratory strains of drilling.

Once oil has been brought in and the well put on the pump, these "doublers" can be quickly removed and used at the next drilling operation.

...e-enforcing members are quickly and easily bolted to legs of pumping derrick—thus DOUBLING its strength for the heaviest drilling





INTERNATIONAL STANDARD IDECO BUILDINGS (GALVANIZED)

The International Derrick

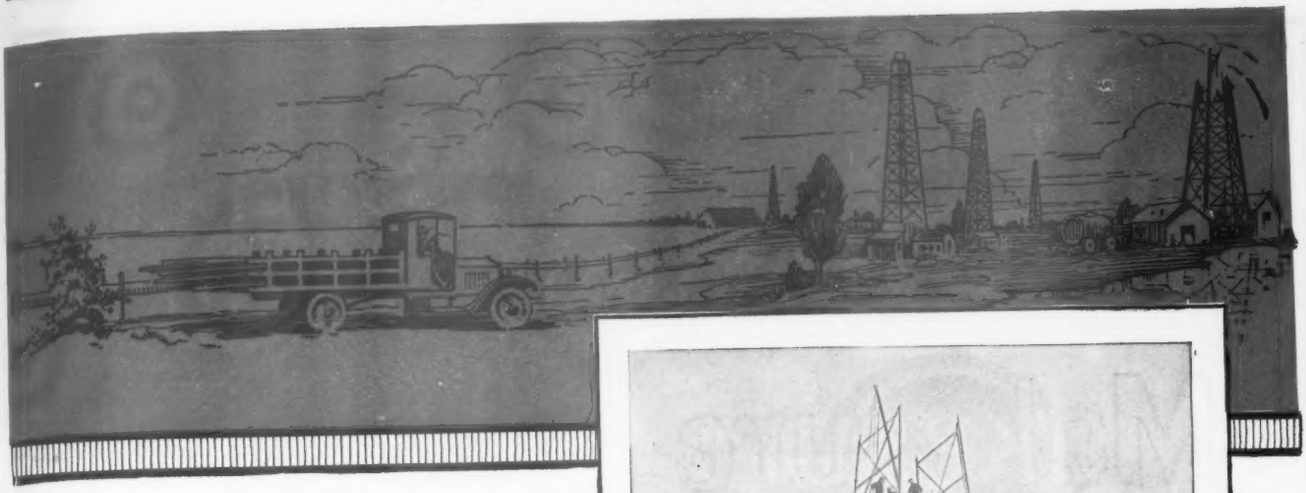
Dallas
Houston
Mexia
Wichita Falls
Pyote
Amarillo
Borger
Corsicana
Pampa
Panhandle
Shreveport
Oil City
Smackover

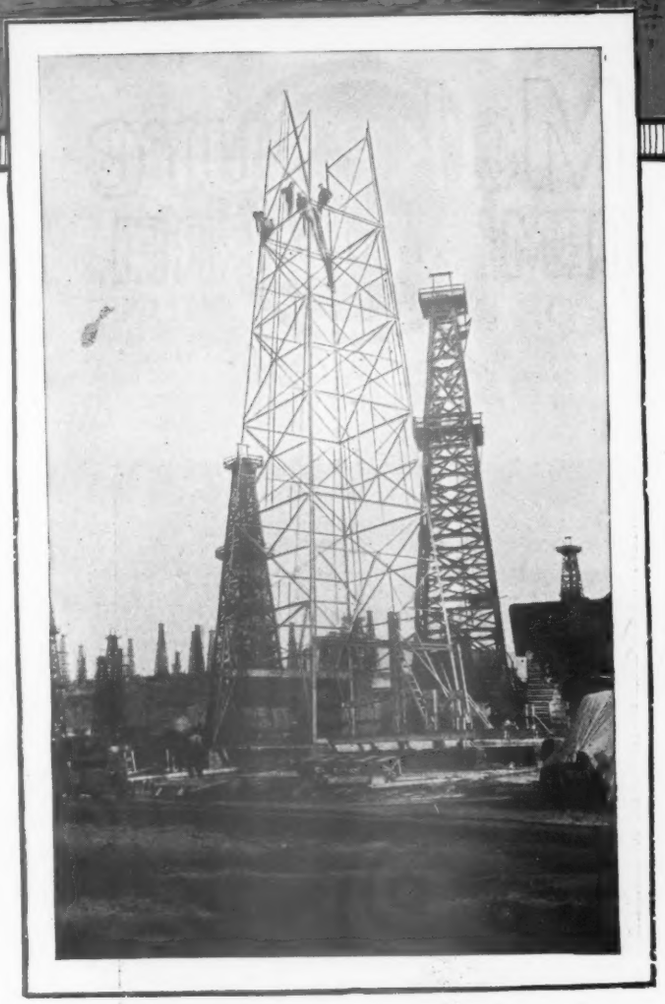
The largest company devoted of steel (galvanized) oil, gas and

COLUMBUS, OHIO

California
National Supply

Export Representation: 74 Trinity Place, New York City





The cost of "Ideco" Equipment is therefore materially reduced—one set of re-enforcings may serve the drilling of hundreds of wells. For the balance it is only necessary to buy pumping rigs.

Take this saving into account when you plan your future purchases.

Write or call at our nearest branch for full information on International "Ideco" Steel Derricks, Bull Wheels, Calf Wheels, Band Wheels, Complete Steel Rigs, Galvanized or Painted.

INTERNATIONAL STEEL IDECO DERRICKS
(GALVANIZED)

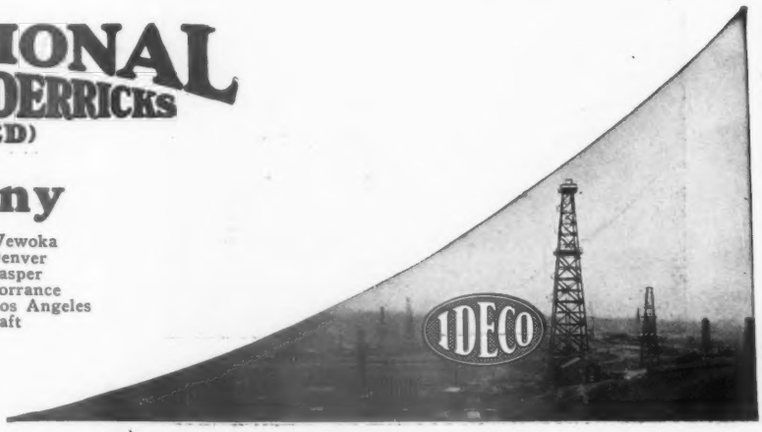
& Equipment Company

exclusively to the manufacture equipment for the artesian industries

TORRANCE, CAL.

Eldorado
Tulsa
Tonkawa
Drumright
Okemah
Seminole

Wewoka
Denver
Casper
Torrance
Los Angeles
Taft



Representative
Co. of California
Columbus, Ohio Los Angeles and San Francisco, Cal.

The CROWELL

Makesure
CEMENT BARREL
OR SHOE
Lorraine Built

PRECISE OPERATION

EVEN DISTRIBUTION OF CEMENT

Exceptional precision in operation, and accurate control of the cement, permits placing it where wanted, and evenly distributed around the casing, with an exceptionally accurate regulation of quantity and depth.

The construction and operation of this device is extremely simple and efficient. The placing and distribution of the cement is practically automatic after it is dumped in the well.

This device is also used to set casing at the bottom of the hole and to cement combination oil and water strings.

Complete descriptive literature will be mailed on request.

THE LORRAINE CORP.
MANUFACTURERS AND DISTRIBUTORS
OIL WELL SPECIALTIES
115th and Alameda Streets
Los Angeles, Calif.

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The Lorraine Corporation,
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523 S. Washington St.,
Box 1796,
El Dorado, Arkansas

Kern County Representatives:
New Method Pipe Slotting Company
Phone 465 Taft

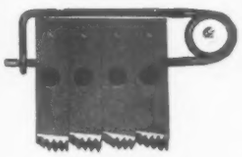
A Letter from Harry G. Nye

Nye Drop Forged Pipe Cutter

No. 1-A ⅛ to 1¼"..... $2.25 net
No. 2-A ¼ to 2"..... 3.00 net
No. 3-A 1 to 3"..... 5.00 net

The No. 1A is the same as the No. 1 except that it is equipped with a ratchet for work where space is restricted.

No. 1A Nye Receding Pipe Threader, complete ...$12.00 net
West of Rocky Mountains $13.50



Nye Chasers
Fit Nos. 1, 1A and 2 Receding Die Stocks

Each set is guaranteed in every particular. Will cut much easier than other similar dies.

No. 1, 1" to 1½" ..$ .75 per set net
No. 1, 2" .....$1.25 per set net
No. 2, 2½" to 4" .. 3.60 per set net

NYE NO. 2
Geared Threading Device Improved

Capacity 2½ to 4 in. inclusive
Net price complete $50.00
West of Rocky Mountains .. 55.00
FREE TRIAL—ABSOLUTELY GUARANTEED

Nye thin blade cutter wheel, made to fit all standard makes of pipe cutters, and guaranteed against breakage in use. Made both in smooth and knurled edge.

To the Oil Men of the U. S. A.

Fellow Citizens:

We have been hearing a lot lately about 100% Americans, and that is what I claim to be. I am as much 100% American as a 100% American cheese sandwich, which, by the way, is my own invention. I'll be glad to give you the recipe: To make a 100% American cheese sandwich, you take a piece of American cheese and put it between two pieces of American cheese.

But there is nothing that makes an Englishman or a Frenchman or almost any other man as mad as some fellow who thinks that, to be a 100% American, you have to think that nothing in any other country is as good as it is in America, and that the biggest is the best. We are always bragging that we have the longest bridge, and the highest building, and the most murders.

Well, if to be big is to be beautiful, then a mule is prettier than a butterfly, and a pumpkin than a peach. Our movnig picture magnates are always making "super-pictures," and super is right. Because the only thing notable about them is the fact that there are 5000 supers in the mob scene. But a picture with five people in it that will bring a throb to the heart or a thought to the mind is a greater picture than one that has nothing to recommend it but the size of its payroll.

The Nye Tool & Machine Works is the largest plant in the world engaged exclusively in the manufacture of pipe-cutting tools, but it is the quality of the tools that makes the size of the plant, not the size of the plant that makes the quality of the tools. If to be big is to be beautiful, then why does your wife want to reduce? If the large is the lovely, the Creator would have made nothing but mountains, and never would have bothered to make a rose.

To me, a greater marvel than the thighbone of a mastodon is the ankle of a flea. If bigness is all, then throw away your watch and carry a set of chimes, and trade in your sedan for a truck. If 100% Americanism is bragging about the size of something, then when Frenchmen talk to you about Mona Lisa, tell them about our billboards.

I believe in America, but I believe it can be made better; and I said better, not bigger. I believe in Nye tools, but I have always tried to improve them. I wasn't satisfied to sit down with what I had, but sat up nights with it. Nye tools cut pipe faster and easier than any others, but if I can think of any way to make them cut even faster and easier, that is what I want to do. I don't claim they are 100% perfect-only 99 and 9/10ths.

Yours very truly,

HARRY G. NYE.

Otherwise Known As

THE NYE TOOL & MACHINE WORKS

4120-30 Fullerton Avenue
Chicago, Ill.

(Copyright, 1927, by Harry G. Nye. All rights reserved)

Nye Saunders Pipe Cutter

No. 1 .....$ 1.80 net
No. 2 ..... 2.70 net
No. 3 ..... 6.60 net
No. 4 ..... 10.80 net
No. 5 ..... 16.80 net

The rugged construction and few working parts account for the simplicity and durability of these Nye Receding models. They do the work easily and efficiently.

No. 1 Nye Receding Pipe Threader, complete ....$9.60 net
West of Rocky Mountains $10.80

Nye Self-Locking Vice

No.	Pipe	Vise, Complete Net
00	⅛ to 2 "	$2.82
10	⅛ to 2½"	3.34
20	¼ to 3½"	5.00
30	½ to 4½"	7.33

No More Daily Oiling!

Patent Applied For

OIL THIS PUMP ONCE A MONTH

Do you realize how much time and energy it takes to carefully oil a pump every day? Every GARDNER-DENVER Self-Lubricating Pump installed saves you, thereafter several days of labor each month.

Furthermore, you KNOW the pump is always thoroughly oiled. No bearings overlooked. This means few replacements and long life.

All types of power pumps are offered in this style.

Ask for Bulletins EP-3 and EP-4.

Territory Available for Agents.

"Quality Builders for Over 65 Years"

GARDNER-DENVER COMPANY

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Sales Offices Throughout the World.

OIL COUNTRY DISTRIBUTORS

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Kirk W. Eichelberger, Rialto Bldg., San Francisco.
Emsco Derrick & Equipment Co., 6511 S. Alameda St., Los Angeles, Calif.
Haywood-Williamson, Shreveport and El Dorado.
F. W. Heitmann Co., Houston
International Supply Co., Stores in all principal Mid-Continent Fields.
Nervell-Wilder Hdwe. Company, Beaumont, Houston and Ft. Worth.
The Republic Supply Co. of California, stores in all Principal California Oil Fields.

GARDNER GOVERNORS PUMPS COMPRESSORS

GARDNER DENVER

ROCK WAUGH DRILLS

Say you saw it in The OIL WEEKLY

NORVELL WILDER HARD-WARE CO. QUALITY AND SERVICE

Serving...

the OIL TRADE *for 17 years*

. . . making the finest kind of friends . . . business friends of old customers . . . adding new customers year by year. Back of this growth is confidence and a sacred regard for a man's word.

YOU—Mr. Oil Man!

can strengthen

your efforts . . . can feel more secure . . . by making NORVELL WILDER your supply department. Think . . . what a selection you will have . . . every standard, reliable machine and tool needed for the oil field.

HANDWHEEL KEYED TO BUSHING
SHELVES SUPPORT GLAND WHEN REPACKING STUFFING BOX
HEAVY BRONZE STEM
SWING BOLTS HOLD GLAND IN PLACE
BRONZE BUSHING CONTACTS WITH BRONZE STEM PREVENT CORROSION
HEAVY BRONZE SEAT RINGS SEAT AGAINST SOLID WALLS OF BODY
SOLID DISC
DISC IS ACCURATELY GUIDED BY CAREFULLY MACHINED GUIDES AND RIDES STRAIGHT AND TRUE TO ITS SEAT WITHOUT DRAGGING ON SEAT RINGS.
FACE TO FACE DIMENSIONS STANDARD TRADE PRACTICE

EACH WEEK there will be illustrated one or more of the reliable machines and tools the oil man will find at NORVELL WILDER'S. *They will be shipped on the day promised.*

NORVELL WILDER HARDWARE COMPANY

BEAUMONT -:- HOUSTON -:- SHREVEPORT -:- FT. WORTH

360° of Wearing Surface

THE claims of "long life" made for Darling Valves do not consist of idle chatter. They are based on definite, tangible, elements of construction which any cautious buyer can see and touch. Take the parallel discs for example. These revolve every time the valve is operated, seating at a different place with each occasion. Surely this feature contributes appreciably to the life of a valve.

Other desirable features are renewable seats with ground-in faces. A wedging mechanism that carries discs over port and in front of seats before spreading. The largest Darling Gate Valve can be easily operated by one man without artificial aid.

Catalogues and diagrams on request

DARLING VALVE & MFG. CO.

Williamsport, Pa.

New York Chicago Oklahoma City Houston

Mid-Continent Distributors:

Frick-Reid Supply Co. Atlas Supply Co.
International Supply Co. Petroleum Supply Co.

California Distributor:

Petroleum Equipment Company, Los Angeles

DARLING
GATE VALVES

Say you saw it in The OIL WEEKLY

Reverse Clutches

do not fail
that are designed
to pass their loads
onto the capable races
of "The Standardized Oil Field Bearing"

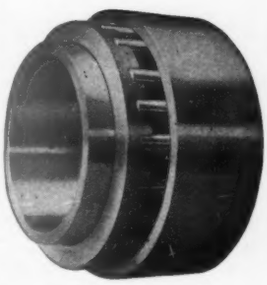
AMERICAN HEAVY DUTY TYPE "C" ROLLER BEARINGS

1 They permit a constantly tight tension on the belt without danger of burning the bearings.

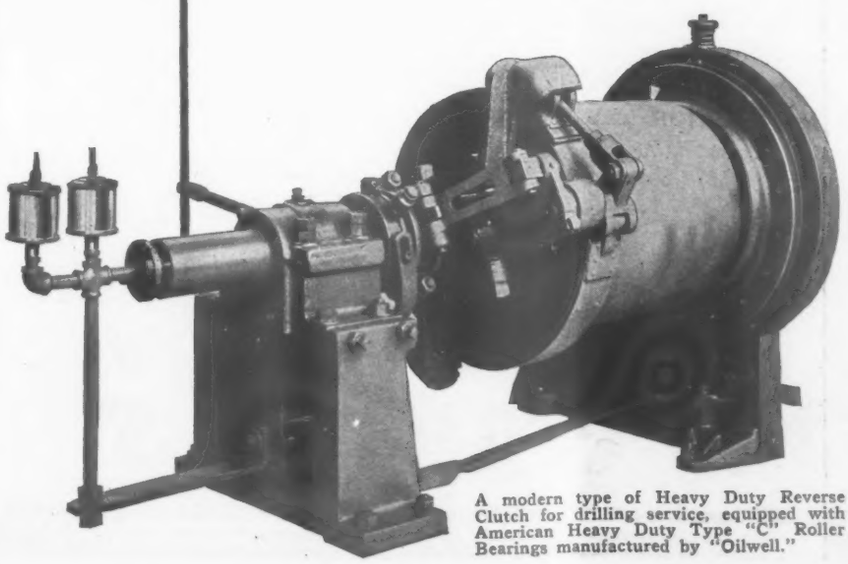
2 They make it possible to design the clutch so that the lubrication system will be absolutely leakless.

3 They permit the clutch to handle the inevitable overloads without failure or risk of failure.

Here are six strong reasons why the reverse clutch should be equipped with a bearing that will relieve strain on the clutch, eliminate burned out bearings, prevent leaky lubrication and guarantee there'll be no breakdowns. Any one of these reasons is of such importance as to warrant the use of American Roller Bearings. When their total importance is once calculated, in terms of their value on the jobs, demand for *improved* clutches will be even greater than it is now.



AMERICAN ROLLER BEARING CO.
PITTSBURGH, PENNA.

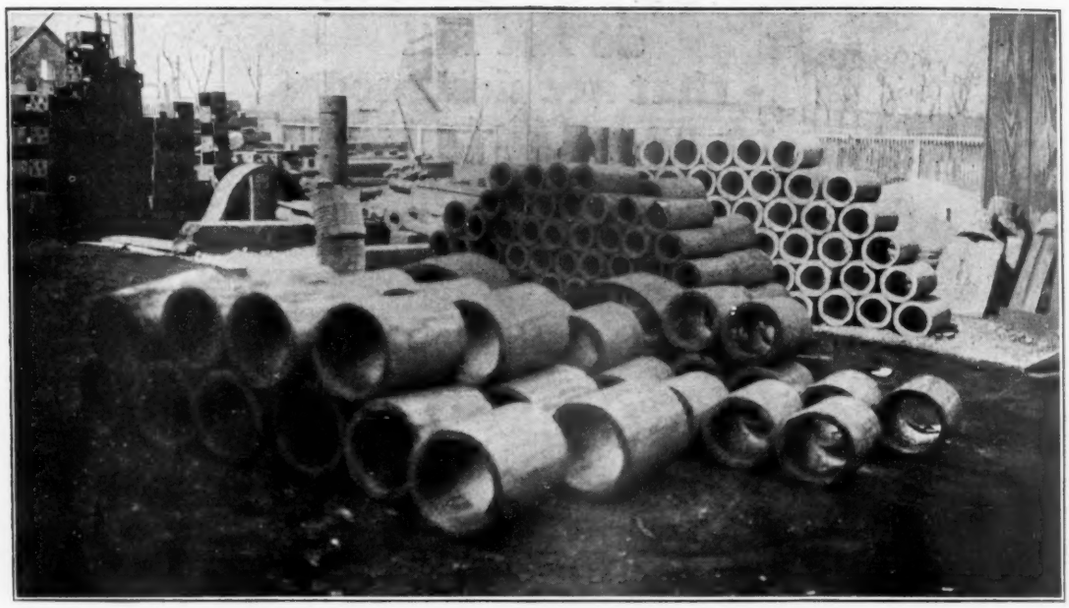


A modern type of Heavy Duty Reverse Clutch for drilling service, equipped with American Heavy Duty Type "C" Roller Bearings manufactured by "Oilwell."

4 They insure the longer life of the clutch.

5 They eliminate much of the general attention and repairs required by clutches having plain bearings.

6 They assure smoother operation; smoother starting; smoother reversing; smoother slowing down and stopping.



Casing Shoes of Agathon Steel made by Beaumont Iron Works, Beaumont, Texas

Agathon Steels of Fine Forging Qualities

FORGEMEN throughout the country appreciate the uniform texture, freedom from blow-holes, pipes, segregations and surface defects of Agathon Alloy Steels. The roughnecks in the field appreciate the toughness and wear-resisting qualities of these super-steels. And the operators, too, appreciate the lack of delays usually experienced with inferior steels.

Agathon Alloy Steels are made in various analyses to meet the individual requirements of casing shoes, bits, jars, tongs, etc. Write us for details and a copy of our Agathon Alloy Steel Handbook.

Mid-Continent Office:
406 W. First St.
Tulsa, Oklahoma

Central Alloy Steel Corporation, Massillon, Ohio

World's Largest and Most Highly Specialized Alloy Steel Producers

Makers of Toncan Copper Mo-lyb-den-um Iron

Cleveland, Syracuse, San Francisco, Detroit, Philadelphia, Chicago, Los Angeles, New York, Tulsa, St. Louis, Seattle, Cincinnati

ACATHON STEELS

AGATHON ALLOY STEELS

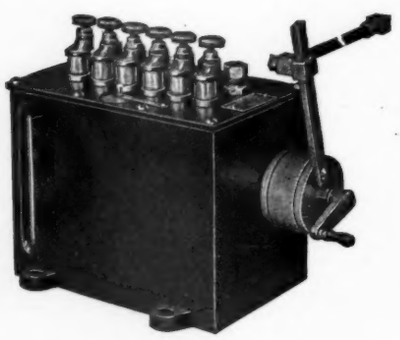
S & B
Back Pressure
Float Valve
Eliminates
50% of the Accidents
In Deep Drilling
The S & B Back Pressure Float Valve safeguards men and equipment, promotes economy, and prolongs the life of wire lines, crown block, traveling block, brake bands and all drilling equipment.
When floating-in, the valve decreases the load on the casing line without decreasing the speed of the casing, and prevents the brake drum from overheating and blowing up.
The S. & B. Float Valve is fully described in an interesting folder which will be gladly mailed on request.
H. C. SMITH MANUFACTURING COMPANY
Whittier, California
Branch Offices and Warehouses:
Taft, California
Ventura, California
Bakersfield, California
Harry B. Shine, Sales Agent,
2408 McKinney Ave.,
Houston, Texas
All Supply Houses

BOWSER ESTABLISHED 1885

The Model T lubricator is high-class but moderate-priced. It is built entirely of machined parts. There are no stampings used. All moving parts are constantly lubricated with a maintained-film of oil.

Model T lubricator is supplied for sizes from one to twenty-eight feeds—more if needed. Either ratchet or worm-gear drive can be supplied.

Each lubricator is tested against a 2000-pound pressure, so that Model T provides full and absolutely dependable lubrication. Model T is thus particularly applicable for installation on oil-engine-driven pumps.



There are several descriptive circulars that tell about Bowser's complete line of lubricators, as well as all about Model T.

For copies of this literature address Dept. 73.

S. F. BOWSER & COMPANY, Inc.
LUBRICATION ENGINEERS AND MANUFACTURERS
FORT WAYNE, INDIANA, U.S.A.

LUBRICATORS-OIL FILTERS-OILING SYSTEMS-ACCESSORIES
OIL STORAGE AND DISTRIBUTION SYSTEMS

Magnolia Petroleum Company

Producer *Refiner* *Jobber* *Distributer*

High Grade Petroleum Products

FUEL OIL

LOADING STATIONS AT

BEAUMONT CORSICANA SABINE GALVESTON FT. WORTH
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HERMA, ARK. MIRANDO

MANUFACTURER OF

Magnolene
REG. U.S. PAT. OFFICE

THE
DEPENDABLE LUBRICANT

"a grade for each condition"

For satisfactory operation of Ford Cars use Magnolene Motor Oil for Fords

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Denny-Andrews Power, Putnam
Acme Pipe Line Co., Albany
Marland Pipe Line Station, Albany
Texas Power Co., Blake Pool
Humble Pipe Line Station, Pioneer
San Angelo Refining Co.
Amerada Corp. Power, Burkett
Acme Tool Co., Cross Plains
Western Carbon Black Co., Pioneer
Phillips Recovery, Sedwick
Phillips Petroleum Co., Trent
Marland Oil Co., Trent
Mid-West Exploration, Trent
Illinois Line Co., Yates Pool
T. & P. Coal & Oil Co., McCamey
Magnolia Pipe Line Co., Throckmorton
Humble Pipe Line Co., McCamey

From OUR Dynamos to YOUR Rigs - - -

—a steady, reliable electric current flows in endless volume. In wet weather or dry weather, in winter or summer, it is ready at the throw of a switch to turn rotaries, hoist elevators, run the pumps, and turn night into day for extra shifts. It eliminates all "wasted fuel," for you USE every ounce of power that you pay for. It eliminates the greatest hazard of well drilling—fire.

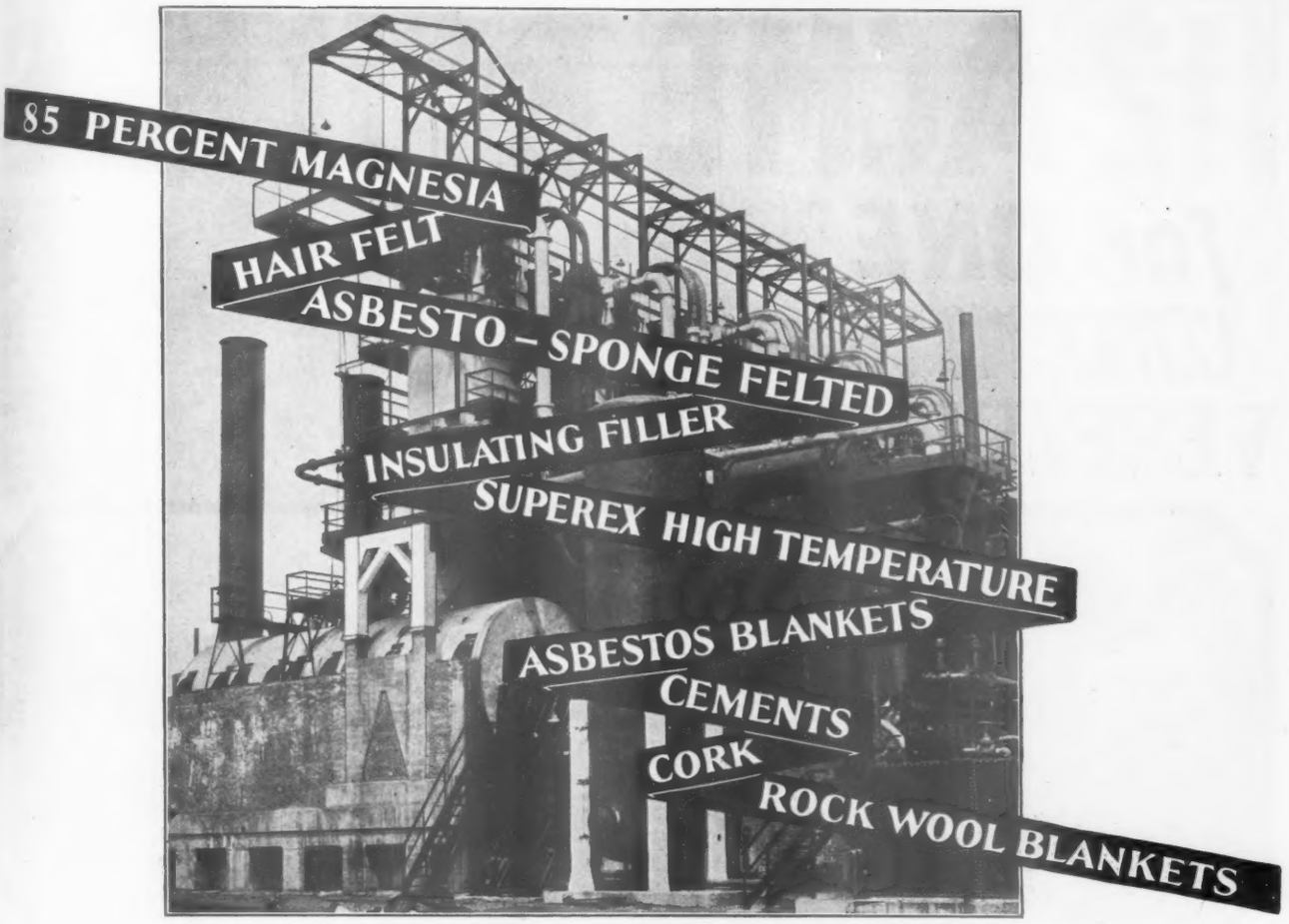
ELECTRICITY provides the power for every oil field task—to heat flow lines, pump wells in single or multiple power installations, pump pipe lines, operate loading racks and gasoline recovery plants—in short, it supplies EVERY "power" need more economically, more satisfactorily.

Over 1250 *miles of "high tension" power lines run through* 38 *West Texas Counties to distribute electricity through* 100 *service centers. This provides the utmost contact convenience, and thoroughly dependable service to oil operators in this territory.*

"Let Our Engineers Solve YOUR Problem"

WEST TEXAS UTILITIES COMPANY
ABILENE, TEXAS

Say you saw it in The OIL WEEKLY



An insulation for every condition

IF we made only one kind of insulation we might be tempted to tell you it was a cure-all for every requirement.

Instead, we offer you a complete line of insulations with a construction force for their application, and an engineering staff to design special insulation for any particular condition.

If you have an insulation job in mind, fill out and send us the coupon, and you will receive some very interesting data on the subject.

JOHNS-MANVILLE

OIL INDUSTRY DEPARTMENT

JOHNS-MANVILLE CORPORATION, 292 MADISON AVENUE AT 41ST STREET, NEW YORK CITY. BRANCHES IN ALL LARGE CITIES. FOR CANADA: CANADIAN JOHNS-MANVILLE CO., LTD., TORONTO

O.W. 12-30

JOHNS-MANVILLE CORPORATION
292 Madison Avenue
New York City

Send me data sheets on insulation for_____

Name_____

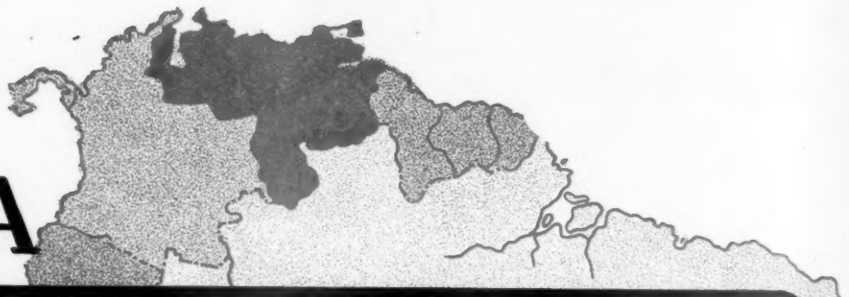
Address_____

Firm_____ Position_____

Say you saw it in The OIL WEEKLY

112 ACME BOILERS

for ONE concern in VENEZUELA



Operators in South America, as elsewhere, have learned that Acme Oil Well Boilers are dependable under the most severe conditions. The illustration shows one trainload of 18 Acme Boilers constituting part of an order for 112 of these boilers for a single oil company in Venezuela.

Acme Boilers are manufactured of very best materials, with a safety margin in excess of the A. S. M. E. Code. They are the best steaming boilers on the market anywhere. All fittings are of the highest grade. Workmanship is guaranteed.

Furnished in various sizes and pressures, from 25 H. P. to 100 H. P.

"If Continental Sells It, There Is No Better"

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CONTINENTAL

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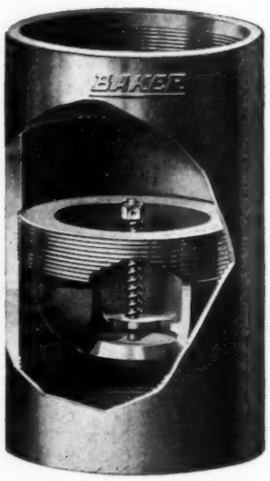

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The OIL WEEKLY

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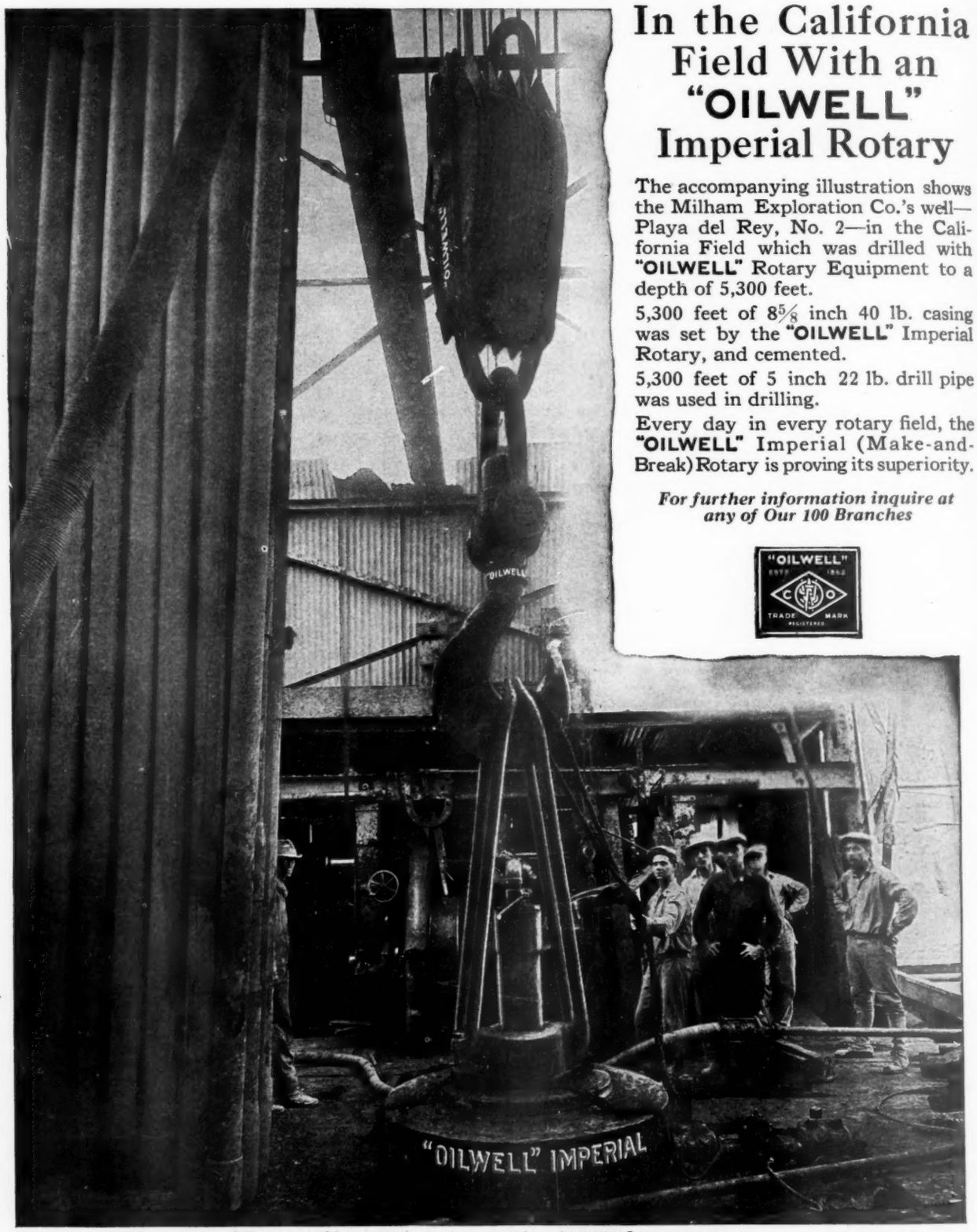
SETTING AND CEMENTING MORE THAN A MILE OF 8⅝ INCH 40 LB. CASING



In the California Field With an "OILWELL" Imperial Rotary

The accompanying illustration shows the Milham Exploration Co.'s well—Playa del Rey, No. 2—in the California Field which was drilled with **"OILWELL"** Rotary Equipment to a depth of 5,300 feet.

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WORLD'S OLDEST AND LARGEST MANUFACTURERS OF OIL FIELD EQUIPMENT

Say you saw it in The OIL WEEKLY

Production and Operations Slump; Refined Prices Off

Seasonal slack demand sends gasoline and fuel oils to low levels; much empty crude storage is still available

By KENT RIDLEY

MOVEMENT of refined products from refineries is showing the usual end-of-the-year lethargy which can be expected to continue until after jobbers have made their inventories, when orders are expected to stimulate activity until the depleted tanks are again filled. Meanwhile the low prices obtaining are tending lower, with the end about reached. Further reductions will force refiners to still further restrict their runs.

Production reports show the average for the week before Christmas at the lowest since the close of last January, and a glance at the graph appearing on this page will reveal that fluctuations during the year which is closing have not been nearly so pronounced as for the year previous.

Fewer wells were completed during the week covered by the current report, and the initial production was far under the previous period.

Both gasoline and burning oils have shared in this inactive market, and price cutting failed to stimulate buying. U. S. motor grade of gasoline is being offered in quantities at 5¾ cents per gallon, and while fuel oil has failed to stir up a reasonable demand at 70 and 75 per barrel. Other than export orders placed recently with refiners in the Texas Panhandle district, the movement of gasoline has been confined to small shipments.

Water in West Texas

The crude market in the West Texas district was benefited to a limited extent during the past week by the appearance of bottom hole water in four flowing wells in the heart of the Hendricks field, Winkler County. The percentage of cut oil in three of these wells increased to one-half of the production while flowing against back pressure, and other nearby wells are in danger. This encroachment of water affected wells comparatively high on structure, and furnished a surprise to the operators, since the oil drainage by these particular wells is under the average for the field.

While the encroachment of water in the Hendricks field heralds a shorter life for flowing production, it will serve to speed up developments and bring on a maximum daily production in order to recover the oil quickly. The operators are now making their development plans for 1928 with this idea in mind, and the peak point of production in the field will come much sooner than originally planned. Field storage and tank car movement will be used on a larger scale to dispose of the forthcoming flood of oil from this flush field.

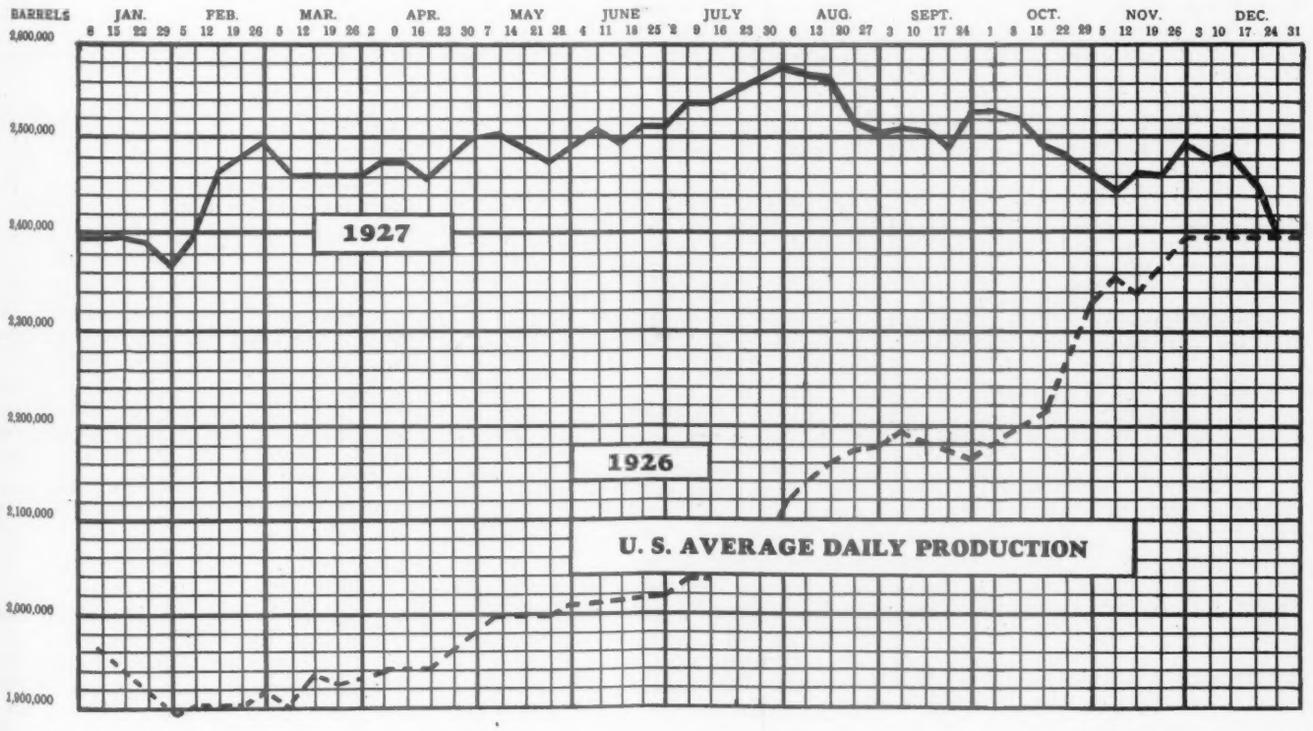
Production Off

Production fell off substantially again during the week ending December 24, according to estimates of the American Petroleum Institute, the daily average for the period being 2,432,200 barrels, or 24,570 barrels lower than during the previous week.

Oklahoma contributed more to the decline than any other section, the daily average for the State being 705,750 barrels, approximately 15,000 barrels less than during the week before. Each of the five pools of the Seminole area showed decreases, the greatest drops being in Earlsboro and Bowlegs, approximately 7000 and 4000 barrels, respectively.

Texas as a whole registered a decrease of about 5000 barrels, in spite of the fact that West Texas had increased 4000 bar-

UNITED STATES CRUDE PRODUCTION TREND



DETAILS ON CRITICAL FIELDS

Pool—	Oil Wells Completed	Total Initial Production	Initial Per Well	No. Producing Wells	Daily Production Barrels	Daily Production Per Well	Rigs Up	Wells Drilling
PANHANDLE								
Hutchinson County	1,082	542,855	502	980	54,925	56	9	19
Gray County	176	66,325	377	175	18,985	108	11	45
Carson County	177	58,695	332	158	7,725	49	..	5
Wheeler County	41	14,170	346	34	1,305	38	4	8
Totals	1,476	682,045	462	1,347	82,940	62	24	77
WEST TEXAS—								
Church & Fields	173	197,620	1,142	165	84,565	*513	2	12
Gulf-McElroy	55	49,700	904	55	18,455	336	..	2
Hendricks	37	113,750	3,074	43	62,075	*1,444	18	77
Yates	101	606,230	6,002	99	46,705	*472	23	45
Totals	366	967,300	2,643	362	211,800	585	43	136
OKLAHOMA—								
Seminole	1,187	1,514,999	1,276	1,058	368,792	348	9	139

*Production partially pinched.

rels. The Gulf Coast section showed a decrease of approximately 6000 barrels. The average for Texas during the week was 654,750 barrels.

California's average was 621,300 barrels, a decrease of 2800 barrels; that of Arkansas was 94,350, decrease 850 barrels; Louisiana 61,900, increase 450 barrels. The Rocky Mountain States produced at the rate of 78,050 barrels a day, approximately 2000 barrels less than during the previous week, with Montana being mostly responsible for the decrease. The Eastern States had a daily average of 110,500 barrels, 500 barrels less than during the preceding week. The daily average for Kansas was 105,550 barrels, or 500 barrels more than for the week before.

New Wells

The initial production from new oil wells completed during the past week amounted to only 72,541 barrels as against a total nearly 31,000 barrels higher during the previous week.

Responsibility for the large decrease goes to Texas, where the initial of new wells dropped approximately 27,000 barrels, the new figure being 49,570 barrels. This amount of oil was from 35 producers, while the 76,000 barrels of the week before was from 47 wells. The bulk of the new oil of the State was supplied by West Texas, numerous large wells having been completed in Pecos and Winkler Counties. The largest well of the week was Roxana Petroleum Corporation's Tippett 4, in the Yates field, Pecos County, a 16,000-barrel producer. The Gulf Coast section of Texas experienced an unusual slump, only 265 barrels of new oil being reported, whereas the usual amount is at least 4000 or 5000 barrels.

Oklahoma's record for the week was about the same as for the previous week, the total initial of new wells in each case amounting to about 10,000 barrels. However, there were only 25 new wells for the week, as against 31 the week before, the average yield per well thus being higher for the 25 wells. Only nine gas wells were completed, as against 23 for the previous week.

Although 15 new oil wells were completed in California as against 13 during the week before, they were not such large producers, the initial production for the two weeks being approximately 7000 and 12,000 barrels, respectively.

Permits Off

Drilling permits issued by the principal oil producing States during the week ending December 24, numbered only 213, as against 257 for the previous week. Texas issued 103 in comparison with 128 during the week ending December 17; Oklahoma 42, as against 57; Kansas 15, a decrease of five; Louisiana 11, decrease four; California 30, decrease 35; and Arkansas three, increase of one. In the Rocky Mountain States nine permits were issued.

Stocks

Seminole stocks showed an increase during the early part of December of slightly more than 1,000,000 barrels, with a total of roughly 1,200,000 barrels of crude in steel tanks. The capacity now up in the area is reported as being in excess of 25,000,000 barrels, but the present rate of crude movements out of storage as compared with the runs to tanks shows that vacant space could be filled in little time.

While surplus crude stocks over the country generally stand out as being the greatest detriment to a strong crude market, the present empty space throughout the Mid-Continent reveals that over-production has a long way to go yet to make matters worse. An example of the net room at tank farms in Oklahoma is seen in approximately 114,000,000 barrels tank capacity now in the State, while crude stocks run slightly over 90,000,000 barrels, leaving room for around 20,000,000 barrels. Storage capacity in Kansas aggregates little more than 11,000,000 barrels, while there is 5,000,000 barrels of empty space. In the Texas Panhandle there is approximately 20,000,000 barrels capacity, with 5,000,000 barrels vacant space, and North Texas, outside of the Panhandle, has 47,000,000 barrels of storage capacity with 26,000,000 barrels room yet to be filled.

California

No material change was noted in the California situation during the week. The 3000-barrel slump in the Long Beach field lent a slight tone of optimism in market circles, although production will undoubtedly jump in the immediate future. No completions were recorded in the field and several wells were killed to deepen. There is still a number of opinions as to the possible peak the field will attain. The deepening campaign has lost no momentum and the situation is still a very dangerous one, regardless of over-optimistic reports. A 150,000-barrel peak will retard the recovery of the oil situation in California for at least six months.

The discovery well in the Rincon field did not hold up as well as it promised in the beginning. It flowed irregularly at a rate in excess of 500 barrels for several days, but ceased to produce for no apparent reason. By using a compressor the well was brought back on production for a few hours. It is now flowing at irregular intervals. The development campaign in the field continues at top speed, regardless of the outcome of the discovery well. There is still much wrangling over the drilling of permits and it looks as if the beach may not be developed extensively.

Petroleum stocks were drawn upon during November to the extent of 354,000 barrels, according to figures released by the Pacific Coast office of the American Petroleum Institute. The total withdrawal was far below the figure for October, but was considered high for the late fall months.

The demand for fuel oil and gasoline was practically the same as a week ago. Fuel oil is moving much slower than since the recent price reduction along the Atlantic seaboard. The domestic consumption of gasoline is much higher than at the same time last year. Exports of the commodity to the Pacific Northwest and Pacific foreign ports are holding up remarkably well.

Yates Field Extended by Big Producer

San Angelo—The Yates field was extended nearly one-half mile to the southeast late last week with a big producer despite the fact that this side of the field was generally believed to be defined because of the presence of a high percentage of water in Marland and Gulf's wells. Oil production was carried down the Pecos River to the northwest corner of Osage Oil Corporation's Halff lease in section 70, Crockett County, with an initial flow of 150 barrels of pipe line oil during the first eight minutes after drilling pay at 1015-1050 feet. More definite gauge of the oil production could not be had because of the absence of tankage, but same is being erected this week.

The performance of the Osage well opens the way for more extensions to be made to the Yates field in Crockett County. C. E. Simmons & Company's Halff 1, located about one-half mile further down the river, is ready to drill in and will have considerable bearing on the trend of production in this direction. The Osage well is producing from the upper sand pay encountered by Gulf's Thompson short lived gusher, and did not log the big lime encountered above the pay in the Yates field proper.

Action on the Yates field proration plan proposed by Simms Oil Company has been deferred by the proration committee, but a special meeting of all operators has been called by W. A. Moncrief, chairman, to be held in Fort Worth, January 6.

Movement From West Texas Will Be Tripled in Few Weeks

Construction of additional loading facilities and favorable rates to consuming points will increase shipments in tank cars

By H. H. KING
Staff Representative

FORT WORTH, Tex.—The movement of crude from West Texas districts via tank cars during the early part of 1928 will be more than tripled in volume as compared to car shipments made in November because of the number of new racks completed during the past few weeks and those scheduled for completion shortly. Increased transportation facilities for the crude produced in West Texas during the next three months must come from the railroads serving the district, as the new pipe line systems building and planned will not be in service until next spring, or summer.

The low gravity crude offered by West Texas fields at comparatively cheap prices enters into more direct competition with Mid-Continent oils when transported in tank cars because of a greater market range, while that handled by the major pipe line companies through direct lines reaches only a few Coastal plants, or outside buyers.

Tank car movement of West Texas crude averaged 28,175 barrels daily during November, 1927, while during the same period the district produced oil at an average rate of 225,300 barrels daily. Other than the 85,000 barrels daily handled by Humble Pipe Line Company and 25,000 barrels daily by Gulf Pipe Line Company, the remainder was stored in the district by producers and pipe line companies. Magnolia Pipe Line Company also has a direct pipe line outlet, but this was not put into operation until December 3. These three direct pipe line outlets now serving the district have a combined capacity of about 140,000 barrels daily. Trunk lines being built by the Shell Pipe Line Company (Roxana) and the Illinois Pipe Line Company (Ohio Oil Company) will add about 30,000 barrels each, thus assuring the district 200,000 barrels daily pipe line outlet. However, the latter line will not be operating to the Gulf Coast terminals until next spring, while the Shell line from McCamey district to Southern Oklahoma will not be completed until early next summer. The Texas Pipe Line Company is a prospective builder of a 10-inch trunk line from McCamey to the Gulf Coast, but no action will be taken until its volume of controlled production in the district justifies such an investment, same also applying to the Southern Pipe Line Company.

WEST TEXAS TANK CAR SHIPMENTS

Tank car shipments of crude oil during November, 1927, from various West Texas fields to Gulf Coast and interior refining centers are listed below, showing names of shippers and source of crude by counties:

Shippers	Crane	Upton	Winkler	Jones	Reagan	Runnels	Totals
Southern Pipe Line Co.	342,630		224,895	....	....	....	567,525
American Petroleum Co.	....		96,850	....	....	....	96,850
Roxana Petroleum Corp.	64,500		....	....	....	....	64,500
Phillips Petroleum Co.	....		....	40,450	....	....	40,450
Big Lake Oil Co.	....		....	....	34,000	....	34,000
The Texas Company	25,350		....	....	....	....	25,350
Orient Oil Operating Co.	9,050		....	....	....	....	9,050
Kay County Gas Co.	4,550		....	....	....	....	4,550
Humble Oil & Refining Co.	....		....	....	....	2,900	2,900
Totals	446,080		321,745	40,450	34,000	2,900	845,175

WEST TEXAS LOADING RACKS

Tank car racks located on the Orient, Texas & Pacific and Santa Fe Railroads in the West Texas district are listed below by counties, showing the owners, car capacity and location of each rack:

Owner	Railroad Point	Capacity in Cars	Location Rack
Howard County—			
Marland Pipe Line Co.	Coahoma	10	Sec 43, Blk 30, T&P Ry Sur, T-1-N.
Jones County—			
Phillips Petroleum Co.	Trent	10	Sec 36, Blk 19, T&P Ry Sur.
Midland County—			
Gulf Pipe Line Co.	Midland	50	Sec 41, Blk 38, T&P Ry Sur, T-1-S.
Mitchell County—			
Col-Tex Refining Co.	Colorado	30	Sec 42, Blk 26, T&P Ry Sur.
Reagan County—			
Big Lake Oil Co.	Texon	40	Sec 1, Blk 2, University Lands.
Reagan County Pur. Co.	Kemper	15	Sec 11, Blk 11, University Lands.
Texon Oil & Land Co.	Santa Rita	30	Sec 36, Blk 9, University Lands.
Runnels County—			
Humble Pipe Line Co.	Benoit	10	Sec 161, E T Ry Co Sur.
Upton County—			
Gulf Production Co.	Hurdle	50	Sec 2, GC&SF Ry Sur.
Humble Oil & Ref. Co.	McCamey	50	Sec 65, Blk 35, H&TC Ry Sur.
Humble Pipe Line Co.	McCamey	50	Sec 65, Blk 35, H&TC Ry Sur.
Illinois Pipe Line Co.	Hurdle	30	Sec 19, Blk 1, MK&T Ry Sur.
Marland Pipe Line Co.	McCamey	40	Sec 66, Blk 35, H&TC Ry Sur.
Orient Oil Oper. Co.	McCamey	5	Sec 3, GC&SF Ry Sur.
Roxana Petroleum Corp.	McCamey	22	Sec 12, TC Ry Sur.
Southern Pipe Line Co.	McCamey	72	Sec 65, Blk 35, H&TC Ry Sur.
The Texas Pipe Line Co.	Crossett	30	Sec 66, Blk 35, H&TC Ry Sur
Pecos River O. & P. L. Co.	Hurdle	*30	
Ward County—			
American Petroleum Co.	Monahans	50	Sec 81, Blk "A," GMMB&A Sur.
Blue Bonnett O. & R. Co.	Wickett	20	Sec 21, Blk "F," GMMB&A Sur.
Humble Pipe Line Co.	Monahans	40	Sec 61, Blk "A," GMMB&A Sur.
Independent O. & G. Co.	Pyote	*75	Sec 60, Blk "F," GMMB&A Sur.
Ocean O. & P. L. Co.	Pyote	*30	Sec 100, Blk "F," GMMB&A Sur.
Roxana Petroleum Corp.	Monahans	60	Sec 41, Blk "A," GMMB&A Sur.
Southern Pipe Line Co.	Wickett	72	Sec 20, Blk "F," GMMB&A Sur.
The Texas Pipe Line Co.	Monahans	*30	Sec 80, Blk "A," GMMB&A Sur.

* Building.

Hendricks Field

Rapidly mounting flush production in the Hendricks field, Winkler County, which has been allowed to produce in excess of 50,000 barrels daily average, although without a direct pipe line connection, is forcing the use of tank cars by both major and independent companies operating in this field. An unrestricted drilling campaign is under way in this field, and field storage is being used to accommodate oil production until lines to distant car racks can be put in operation. Southern Pipe Line Company, American Petroleum Company and Shell Pipe Line Company are loading crude aboard cars on the Texas & Pacific Railroad in Ward County, and the latter is building a second line to McCamey, a distance of about 80 miles, to make tank car shipments over the Orient, also until its trunk line connection is made.

Humble and Texas are at work on eight-inch lines from the Hendricks field to racks on the Texas & Pacific Railroad, but will extend these lines on through to McCamey, where Humble will connect with its trunk line system and Texas will make some shipments over the Orient Railroad.

Independent Oil & Gas Company and Ocean Oil & Pipe Line Company are also building from the Hendricks field to the Texas & Pacific, while Texon Oil & Land Company and Landreth Production Corporation have made tentative arrangements for a similar project to avoid piling up big crude stocks in the field proper. Gulf is expected to extend its trunk line into the Hendricks field, while Atlantic Oil Producing Company is at work on a 10-inch welded line from the field to a big tank farm at Midland, where crude will be turned over to Magnolia for common carrier movement to tidewater, with Atlantic handling Magnolia's production and royalty oil interests in the Hendricks field.

Although the West Texas district has 24 tank car racks completed and building, all of same are not to be used in making crude shipments, as some of the owners have made arrangements to dispose of their oil via other sources since racks were built. Gulf's rack at Midland and Humble's rack at McCamey have not been used since the completion of their trunk line systems to present capacity, while Marland discontinued active use of its racks at McCamey and Coahoma following sale of its production on contract to local lines.

Rail Movement To Increase

Tank car movement from West Texas fields is expected to jump to 100,000 barrels daily within a few months, or to the maximum handlnig capacity of the railroads serving the district. The bulk of this will come from Winkler, Crane, Upton and Pecos Counties, with a limited volume to be expected from Reagan, Jones and Runnels Counties. The Orient and Texas & Pacific Railroads are to be called upon to bear the brunt of this movement, and preliminary steps are being taken by each carrier to cope with the situation by adding to and building new side-tracks along the main line. The Orient has enjoyed a good crude oil business since the establishment of the Big Lake field as a major producing area in 1924, and was taxed to capacity with crude movement during the flush days of the Crane-Upton fields, but additional engines and an improved roadbed enables this line to take on more tonnage.

The Orient will participate with the Texas & Pacific in crude movement from the Hendricks field even though the former is about 80 miles south of the field, as cheaper freight rates to Gulf Coast export terminals are available on the Orient, and shippers are anticipating congestion on the Texas & Pacific. Shell, Texas and Humble are building their lines out of the Hendricks field so as to have access to either of these lines.

Crude oil shipments originating on the Orient Railroad between Big Lake and McCamey districts destined for Gulf Coast refineries and export terminals have heretofore been routed via San Angelo, then over the Santa Fe, which joined in giving reduced rates; but effective December 30, 1927, shippers can obtain practically the same rates by routing trains over the Orient and Southern Pacific Railroads. This new tariff will afford much relief to the Orient, as oil trains can be routed westward from McCamey racks to Alpine, where connection is to be had with the Southern Pacific, thence to Port Arthur and Beaumont, which were the two points mentioned in the tariff announcement, with 18 cents per 100 pounds applying. This affords the Southern Pacific its first opportunity to participate in West Texas crude movement, although Illinois Pipe Line Company may start crude shipments from its Del Rio tank farm to tidewater points in the near future. The only West Texas crude originating on the Santa Fe is that being shipped from a lone producer in Runnels County by Humble, and during November, total movement involved 2900 barrels.

New Railroad

Producers and pipe line companies making shipments of crude from the Hendricks field have been forced to build lines to the Texas & Pacific Railroad in Ward County, involving from 17 to 20 miles of line, owing to the absence of railroad facilities in any

(Continued on page 34)

WEST TEXAS FREIGHT RATES
DOMESTIC

Domestic freight rates applying on crude oil shipped in tank cars from the principal loading points in the West Texas district to interior and Gulf Coast refining centers are shown below in cents per 100 pounds:

To— From—	Hurdle	McCamey	Texon	*Marland	Pyote	Wickett	Monahans	Coahoma	Trent
Dallas, Texas	23	23	23	22½	23	23	22½	20½	17½
Fort Worth, Texas	23	23	22½	22½	17	17	17	14½	10
Galveston, Texas	27½	27½	26½	26½	26½	26½	26½	24	24
Houston, Texas	21½	21½	21½	21½	26½	26½	26½	24	24
Baytown, Texas	27½	21½	26½	26½	26½	26½	26½	24	24
Beaumont, Texas	21½	21½	21½	21½	26½	26½	26½	24	24
Port Arthur, Texas	21½	21½	21½	21½	26½	26½	26½	24	24
El Paso, Texas	20	20	20	20	19	19	19½	22	25½
San Angelo, Texas	10	10	9	9	21	20½	20½	17½	15½
Texas City, Texas	27½	27½	26½	26½	26½	26½	26½	24	24
Shreveport, La.	27½	21½	26½	26½	(a) 20	20	20	20	17
Destrehan, La.	35½	35½	29	29	35	35	35	35	29
New Orleans, La.	37	37	30½	30½	24	24	24	24	24
Sugar Creek, Mo.	33½	33½	27	27	29	29	29	29	27
Whiting, Ind.	36½	36½	35	35	37	37	37	37	35
East Chicago, Ind.	36½	36½	35	35	37	37	37	37	35
Wood River, Ill.	30½	30½	29	29	31	31	31	31	29

(a) Effective January 12, 1928.
* Formerly Kemper.

EXPORT

Export freight rates applying on crude oil shipped in tank cars from the principal shipping points in the West Texas district to Gulf Coast terminals are shown below in cents per 100 pounds.

To— From—	McCamey	Texon Marland	Pyote Wickett	Midland	Coahoma	Iatan	Colorado	Monahans
Galveston, Texas	18	17	20	20	20	20	20	20
Houston, Texas	18	17	20	20	20	20	20	20
Texas City, Texas	18	17	20	20	20	20	20	20
Baytown, Texas	18	(2)	(2)	(2)	(2)	(2)	27	(2)
Beaumont, Texas	18 (1)	(2)	(2)	(2)	21½	21½	21½	(2)
Atreco, Texas	18 (1)	(2)	(2)	(2)	21½	21½	21½	(2)
Port Arthur, Texas	18 (1)	(2)	(2)	(2)	21½	21½	21½	(2)
New Orleans, La.	31	31	(2)	(2)	(2)	(2)	27	(2)
Destrehan, La.	31	31	(2)	(2)	(2)	(2)	27	(2)

(1) Effective December 24, 1927.
(2) No export rate.

Problems Effecting Application of Repressure

Experiences of Tidal Oil Company in work with shallow wells summarized in paper presented before A. I. M. E. at Tulsa

By F. B. HALL
Petroleum Engineer, Tidal Oil Company

IN this paper it will be endeavored to give a few remarks on application of repressuring to such areas as the shallow fields of Northern Oklahoma and Southern Kansas. The remarks will be governed by the experience of the Tidal Oil Company, which is now active in rejuvenating oil production in this area by this method commonly known as the "Marietta Process." Only a few general statements on our present status will be made, as follows:

At October 31st of this year, we estimate that we have an increase of about 600 barrels of oil above that which might be expected by ordinary methods of producing oil. The total new investment necessary for repressuring these properties amounted to nearly $500,000 at the above date. This shows a cost of approximately $800 per barrel increase. The return on this investment amounts to nearly $200,000 per year at the rate of nearly 40 per cent annual return on the investment. The above figures, although not exciting, show promise of being worth while after considering that these properties had been shut down during the summer and are not up to normal production by about 100 barrels, besides the handicap of low prices. In general, it may be said that we are encouraged with the results to date.

The above mentioned shutdown consisted of very lightly pumping the wells but the compressors continued to force air into the sand. At present we cannot say as to the success of this method of shutdown, for although the production shows evidence of returning to its former rate without much difficulty, some properties have developed casing leaks and money must be spent to recondition them.

So much for the present and past and now after bearing in mind that our experience is limited in the time and variety of conditions, it will be attempted to give a brief outline on application of repressuring. The remainder of this paper will be divided in three parts, namely:

1. The Selection of the Property to be Repressured.
2. The Selection of Key Wells.
3. Notes on Repressuring Procedure.

The Selection of the Property To Be Repressured

The size and number of producing oil wells on the property is not as serious in limiting the desirability of applying pressure as was formerly figured. However, it is an advantage to own and control a large number of producing wells in one block, for the reason that the larger the number, the cheaper the cost per unit to equip—also it is more simple and efficient when not necessary to consider one's neighbors. In general, it can be said that a property may be considered as an individual repressuring proposition if a few wells are owned where at least one is an inside location, providing this inside location is within a reasonable distance from one or more of the line wells say for instance within 900 feet as an approximate limit. In the case where no inside locations are operated, it still has value as a prospective pressure property in a cooperative proposition. From now on, for simplicity's sake, it will be considered that a fairly large number of wells, say for example 30 or more, are held in one block and operated by one company. These wells will be assumed to be producing from the same formation and are to be given consideration for repressuring possibilities. An attempt will now be made to list the most important considerations to be made when examining this hypothetical property in view of applying pressure:

1. During the past, what has been the expelling force which caused the oil to migrate into the wells, gas or water under pressure are the only two forms of natural energy that need be considered. Of these two forms of natural energy, water is the most undesirable. Therefore, if a property is being flushed by water at the present time, it is considered as being undesirable for the application of pressure, unless the rate of the water encroachment is very slow. Therefore, we assume that natural gas under pressure has been the force aiding the recovery of oil.

2. The amount of expelling force originally in the reservoir and how efficient this force has been utilized during the past history of the production. Of course, the amount of past energy that has been released means nothing unless it has been made to bring oil into the well. We may be able to make a reasonable approximation of the past efficiency of the recovery if production records are available which show the amount of oil taken from the reservoir and well records showing the approximate thickness of the pay. Then by making an approximation of the oil originally in the reservoir by the volumetric method and by knowing the amount produced we can get an idea of the richness of the remaining pay sand. If these figures show a low yield of, say up to 20 per cent, we know that it is going to be easy to show results by repressuring, unless other conditions are badly against it.

3. The present expelling force. The present oil-gas ratio should be considered, and if high, a careful study be made to find out if it is not likely that an exposed gas sand is not responsible, otherwise it might indicate a porous gas sand grading into a less porous oil sand which might make it impossible to get worth-while results with pressure. In the case of the exposed gas sand, care should be taken to be sure that it can be located. If the gas sand is in the oil-bearing horizon, say between oil pays, it might be hard to handle unless better than the average well records were made at the time the wells were drilled. Should the oil-gas ratio be low, it might be due to water encroachment, and should be given study as stated before, for unless the water is moving slowly, the recovery of oil might not be increased either in rate or amount.

4. *Sand Characteristics.* Most of our experience has been with the Bartlesville sand, therefore we are inclined to compare other sands to this sand. Knowing that in general this sand has responded to repressuring, it is only logical to do this. Thus, if any sand is comparable to the Bartlesville sand, we need not fear it or in general, any sand having a constant porosity, providing this porosity is within reasonable limits.

5. *Production of oil and water.* The past rate of production, both oil and water should be checked. If the plotted oil production shows a normal decline it will help prove that gas is the major expelling force. If water is produced with the oil, it should be found out if possible,

if it is due to casing leaks or bottom water, and if kept off the sand by the pumps. Salt water has been quite a problem to us because of corrosion and cutting troubles; however, we feel that if natural gas were used for restoring the pressure, that our corrosion and emulsion troubles would be very much less. On one of our repressured properties water has probably saturated the sand to the extent that it requires very high operating pressures and results have not been good up to the present time on this property.

6. *Resistance of Sand to the Admission of Gas.* Probably the only sure way this can be tested, is to have a portable compressor made and try each prospective key well separately. If pressures above 350 pounds per square inch is going to be required, it should be carefully weighed before going to the expense of installing compressors. We have had very limited success on these high pressure properties, up to the present, part of this is due to the extra strain on the equipment and part due to poor results in increasing the recovery. Cut oil and corrosion give a lot of trouble here also.

7. The available supply of fresh water should be taken into consideration as a good supply of cooling water is very much desired for cooling engines and compressors.

8. *Proximity to Supply of Dry Gas.* Unless due to bad co-operative conditions it is believed that it will pay to use gas for repressuring in most cases. There is no available data in our possession to prove this point, but it is reasonable to expect less corrosion and cutting of oil and less danger of explosions. The expense should not be prohibitive if it can be figured that nearly all the gas could be recovered when the property is to be abandoned. We do not know whether air or natural gas or the mixture of the two will give the best results which is of paramount importance. We feel that air will give the quickest results, but the ultimate yield is still in doubt. This item does not carry a great amount of weight in the selection of the property and perhaps is more desirable to have an ample supply of natural gas, than an undesirable one, for if the property looked good otherwise, we could afford to install oil burning engines for driving the compressors and combat corrosion and emulsion rather than give it up as not fitted for repressuring.

9. *Effect of Vacuum.* If the property is sensitive to vacuum it will probably show quick response to pressure and low pressures will be required. In general we look upon this as a favorable indication when considering repressuring.

10. *General Repair of the Properties.* If the property is in good repair at the time of repressuring, this is another desirable feature; however, sometimes a property in poor repair shows that it has been neglected in the past with a corresponding higher saturation than one having the best care during its life.

The Selection of Key Wells

Generally, or first consideration of alocation for a key well is its position with relation to other producing wells on the property. Thus, if conditions are very regular and there are no offsets to contend with, it becomes a matter of selecting the well having the most number of relatively near but equidistant producing wells surrounding it. Of course, conditions are never alike at any well, so then it is probably best to prepare a list of the wells that are not desirable for key wells and make note of them on the map. Wells are put on this black list if they have the following undesirable features:

1. Broken and shaley sand. It is evident that wells having exposed sand of this nature will probably not take gas at a reasonable pressure.

2. Wells having an abnormally small amount of sand will be considered bad for the same reason as just previously stated, or because the volume of gas taken will be expected to be too small at reasonable pressures.

3. If a well has been producing a large amount of water, it is rejected if it is felt that the water has not been kept off the sand, so that the sand might be saturated in the vicinity of the well. If it is known that the well is producing edge water, it is thrown in the black list without question.

4. A relatively small daily production, unless due to some fault of the condition of the well, it is considered undesirable. This is also taken as an indication of high resistance at this well and is classed as undesirable.

5. Relatively low initial productions are in this class for the same reason as (4), provided the wells were completed before the rock pressure was badly dissipated.

6. A well in poor repair, that is, one needing to be cleaned, but cannot be, because of collapsed pipe or junk in the hole, or one having a liner that cannot be pulled, is placed in this list. However, a well might have so much junk in it that it cannot be tubed low enough to pump and still make a good key well, because the sand has remained clean and would be productive if the fluid level was high enough. A well like this should by all means be taken for a key well.

7. If no authentic record can be found on a well, it is put in the doubtful class, especially so if it is known that there is likely to be a barren sand exposed so that the pressure might be lost without doing any useful work.

8. All line wells that are offset are tabooed unless co-operation with the offset owner has been obtained. In the case an agreement has been made with the offset owner, sometimes this agreement fixes the wells to be made into pressure wells and the one to be maintained as producers.

9. Structural conditions at the well may have some bearing as to the direction of the spread of the pressure, but we are not prepared to give data along this line, as none of our properties have structural control. There seems to be evidence at some places that the spread is up structure, probably due to less resistance in this direction. If this is true, then the wells high on structure are not desirable for key wells. These general classes of undesirable features will help limit the wells to be considered to a lesser number so that it will be easier to make the selections. Now we can select the key wells from the wells considered as having the best chances of giving results and make them so distributed over the property that each well will have approximately the same area surrounding it. The real test, of course, is to try to force air into the well so selected. If a portable compressor is used, actual data can be obtained as to the action of the well under pressure.

Notes on General Repressuring Procedure

1. *Preparing a Well for Pressure.* As before stated, it is considered good practice to test each proposed key well with pressure before definitely deciding upon its choice. When necessary to run a string of tubing for testing, a packer is set as near the top of the sand as possible, and after the completion of the test this packer is removed and another permanent string of pipe run to carry the air to the sand. This permanent string is four-inch pipe or any size large enough to make it possible to run a pumping string and is cemented near the top of the sand. If possible, it would be well to fill the space between the last two strings of pipe with mud as a protection against corrosive waters breaking in between the water string and the pressure string. In some cases the sand has a very low resistance so that gas will be admitted at low pressures. In this case it is possible that gas may be turned into the casing as it stands, provided no sand is exposed having a lesser resistance than the oil bearing sand. This is done in many cases which makes a very cheap and very adaptable installation. Perhaps where fairly long air strings are necessary, a small amount of the larger pipe might be cemented, and by having a right and left threaded nipple may be unscrewed from and a string of two-inch run on a packer to be set in the short string already cemented to the top of the sand. This would make possible the pumping of the well if it should in some way prove troublesome as a key well. If it is necessary to drill a well for pressure, it should have a water string set and the hole reduced near the top of the sand. After a moderate shot the pressure string is run, cemented, and filled to the top with mud. Wherever a well is drilled on a pressure property a core of the sand should be taken. Most operators prefer to shoot a well when drilled for pressure, the same as when completing a producing well. Some operators also prefer to run a string of tubing inside the pressure string in key wells for the purpose of flowing any fluid out of the well that may have accumulated during a shutdown at the compressor station or for some reason the pressure is relieved at the well. This is probably a good idea where the wells make quite a volume of oil or water at the time repressuring is established.

The Return Gas System. The gas emitted from the producing wells should be recycled if possible, as a means of conserving the natural gas. Most properties have a return system or vacuum system,

however, it should be checked for capacity for the return volume will be increased to approximately one-half the amount forced into the sand and will probably increase to above this amount before operations are abandoned. Adequate drips are necessary, for if the return system plugs at some point too high, a back pressure may be held on a group of wells, thereby causing unsteady production.

The Pressure System. The main things to be considered here are efficiency, capacity and strength. Drips are important in keeping the pressure steady at the plant and keeping a steady volume going into the wells. Sometimes it is necessary to make extra provisions to handle the gasoline condensed before and after the last stage of compression or this condensate will cause considerable trouble. This precaution will not be necessary where a gasoline plant is operated in conjunction with the compressor plant.

Compressor Equipment. A compressor plant large enough to handle the whole property should be built as near centrally located as possible, this location is generally influenced to a large extent by an adequate supply of water. The reason for a central location is increased pressure line capacity and decreased operating cost. The plant will give better operation if it is composed of three units instead of one large one, the reason is better continuity of operation. The compressors and prime movers should be of the stationary type built for continuous service.

Labor Division. The Tidal Oil Company's plants are operated by one man who lives near the plant. In case the plant is centrally located and the property is not too large, the plant operator farm bosses the property. A man takes the gas volume readings on gas going into the key wells, and returning from the producers also, makes analysis of the return gas and tests the capacity of the compressors. This "tester" operates in a district and may have several properties to report.

Data Taken on Operations. Tests on compressors.—Every week a capacity test is made on one unit in the station. This test is made on the discharge from the unit by a high pressure prover. This prover is made at our shops and is calibrated against a test prover.

Plant Operation Data. The discharge, intermediate and hours each unit operates is given weekly.

Volume Tests at Key Wells. Each week a test is made on the volume of gas going into the key well. This test is accomplished by measuring the static and differential pressure across an orifice. Recording meters are not put on key wells because of the cost. It is thought that if the total gas is accurately measured on the return system at the intake to the compressors, that the amount compressed is closely enough known by having a fairly close check on the output of the compressors by proven tests. If a reasonably close check is kept on the hours each unit operates, this gives a reasonable figure on the amount of gas forced into the sand. The readings on the key wells give relative results which are considered accurate enough for its purpose.

Data Taken on Producing Wells

The producing wells are watched for increased production of both oil and gas, also a field analysis of the air content of the gas is made. These tests are made each month. If the well shows an increasing amount of gas volume, the key wells effecting the producer are pinched in or some method is taken to hold back pressure on the producer. This phenomena of increasing gas volume on producing wells is called by-passing and is a factor of large importance in repressuring operations. If this by-passing becomes very bad, the producing well is taken off of production and entirely shut in or used for a key well.

In summarizing, it may be said that while repressuring does not always yield returns on the whole, it is paying its way without much trouble. There is much to learn about this method of increasing the yield of oil and a hearty co-operation among those who are specializing in its application will do much toward speeding up the knowledge of its complications.

The special problems to be considered at this time are:

1. Effects of gas as compared to air in repressuring operations.
2. Study of corrosion problems.
3. Study of the effect of the structure of the sand.
4. Effect of varying amounts of back pressure on producing wells and various problems.

We have confidence that repressuring can be applied to many producing horizons.

Mexican Congress Passes Calles Law Modifying Confiscatory Features of Petroleum Statute

Mexico City.—The bill submitted by President Calles amending articles 14 and 15 of the oil laws was passed unanimously and without discussion by the Chamber of Deputies Tuesday; and the measure has gone to the senate for action, with the prospect that it will be rushed through that body before the end of the present congressional session on December 31.

In the message accompanying the presentation of the bill, President Calles said the proposed amendments amounted virtually to recognition through legislation of the recent Mexican Supreme Court decision that Articles 14 and 15 are unconstitutional in their application to the Mexican Petroleum Company and, inferentially, to other companies.

The amendments would remove definitely the main objection of oil companies and the United States government to alleged retroactive and confiscatory features of the present oil law, by doing away with "confirmatory concessions for 50 years" which have been given in exchange for rights acquired by oil companies before May 1, 1917. The new measure would provide for recognition of oil rights acquired before that date without limiting their existance to 50 years or reducing them to the status of temporary concessions.

Unless the bill passes in the Senate by December 31, it cannot come up in that body before next September, when the next regular session begins. If the senate does not act on the measure, however, it is expected that President Calles may promulgate the amendments anyway after congress adjourns, which would be an act within the limitations of the presidential power.

If the enactment of the amendments is completed, it will mean, presumably, that at least the remaining drilling permit cases before the Supreme Court and involving American oil companies will automatically be dropped. In the absence of such a legislative treatment of the problem, four additional decisions by the court similar to that in the Mexican Petroleum Company case would have been necessary to establish a precedent of non-constitutionality in regard to the sections of the oil laws involved.

There is a popular belief that Colonel Lindbergh's visit had something to do with the Calles bill—that President Calles is making a gesture of friendship to the United States in answer to the good-will flight of the "Lone Eagle."

Washington.—Whether the language either of the decision in the Mexican Petroleum Company case, or of the proposed amendments, is broad enough to solve the whole controversy over attempted retroactive application of the Mexican doctrine of nationalization of natural resources, no official in Washington cared to say. The text of the court decision has not been received either by the state department of the embassy, although it is understood to have been signed and probably to have prompted President Calles' move to amend the laws.

C. Fradich, petroleum engineer for Wentz Oil Corporation of Ponca City, Oklahoma, spent several weeks during October and November at the Colorado School of mines at Golden, Colorado. His mission was the study of oil field flooding and was carried on under the direction of Prof. R. C. Beckstrom of the Department of Petroleum Engineering.

Mrs. N. T. Sterling, mother of William S. Sterling, treasurer of the Peters Petroleum Company, Tulsa, died at her home in Baltimore, Maryland, December 14. Mr. Sterling returned to Tulsa last week after spending three weeks at his mother's bedside.

Cooperative Re-pressuring Proving Profitable at Nowata

Operating companies consolidate leases for joint application of air pressure in rejuvenating wells over large area

By WALLACE DAVIS
Staff Representative

IN times of depression, when overproduction has brought low crude prices, one of the outstanding problems facing the producer, especially in the old, partially depleted field, is making the small well pay.

One of the best examples in the Mid-Continent territory of reviving these old wells and in the long run not having a big investment to overcome, is a campaign of work inaugurated by the Delaware Consolidated in the western edge of Nowata field of Northeastern Oklahoma. The work of this concern is more interesting than the ordinary program of bringing back an old lease, because it involves the combined efforts of many companies to consolidate individual leases into community property for reviving worn-out production under a simple plan of unit operation, whereas it would have been out of the question to profitably carry on such a program individually.

Above—Delaware Consolidated's air plant where six Miller direct connected 225 h.p. compressors are restoring pressure in 15-year-old wells. Right—Reservoir which receives water from a creek to supply cooling water for the plant.

Properties as Capital Stock

The Delaware Consolidated, operating a tract seven miles long in an eastern-western direction about six miles north of Delaware, Oklahoma, operates properties formerly operated by the Pure Oil Company, Prairie Oil & Gas Company, Tidal Oil Company, Transcontinental Oil Company, Tidal Refining Company, Warner & Caldwell, King and Glass et al. Dunn & Lewis, petroelum engineers of Tulsa, who organized the Delaware Consolidated and who are in charge of operations, brought these companies and individual operators into the cooperative plan of development early in 1926, and the program of revival was started. The various properties were appraised at the time of organization according to the production. The investment of each company was determined by the valuation placed on its property, and division of income from the combined property is now in turn determined on that basis.

A central air plant was constructed on the property and a six-inch air main runs east and west from the plant. From this line, two-inch lines branch off to the individual key wells, of which there are now 24. Six 225 h. p. Miller direct connected compressors furnish pressure for the lines.

A brief relation of what the Delaware Consolidated has done in the way of reviving old producers is sufficient to show the remarkable results. Starting out to restore pressure in weak sands with air, together with what gas could be caught by simple hook-ups at the casing heads, the concern has increased well production in approximately 200 wells on the east side by between 250 and 300 per cent. About 50 out of 150 wells, dead at the time the consolidation went into effect, have been revived and put on production. The size of the undertaking of bringing these wells back is seen in the fact that the average age of the wells on the property is more than 15 years. The age, with the fact that the high mineral content of the Oswego water served to corrode the casing and tubing, had reduced the holdings generally to a bad plight at the time the revival program was started. Old casing and tubing was cut and pulled and replaced by substantial equipment before air pressure was applied. Driving pressure into the sands from key wells brought back production after it had been long considered dead in several particular wells. Twenty central powers scattered over the property furnish the pumping power. The total number of wells on the property, which includes in the neighborhood of 3850 acres, is about 500, including the 100

wells still off production. Work is now being started on shooting pressure into the west side property. The average depth of the wells runs around 800 feet.

Efforts of the company are to have sufficient pressure restored in the sands within the next five years to make the wells flow, and from the noticeable increase in pressure restored thus far, the project appears plausible. The daily yield now from the property averages roundly 300 barrels. Prior to the organization of the Delaware Consolidated, the gas pressure was gone, and practically every well on all of the individual properties were on vacuums. This concern has since abandoned the use of the vacuum.

The water supply for the cooling towers of the company is pumped from a nearby creek through the use of automatic pumps. A sheet-iron building houses five automatic air pumps, each of which handles 75 barrels an hour, picking the water up from the creek running under the house and discharging it through a six-inch main to the water tank for the cooling towers. A tank submerged in the creek serves as a reservoir with water inlets for the pumps, which are charged with air pressure. Water in individual tanks on the five pumps is discharged by air pressure to the tower tank, which releases the air and allows a float to go down. As the next supply of water comes into the small tank, the float rises to the point of tripping the air valve for another discharge. The air is supplied to the pumps through a high-pressure, two-inch line from the six-inch main.

Above is shown the cooling system in the Nowata field plant. Note the concrete foundations and general cleanliness. Below shows six-inch discharge and return lines, with scrubber tanks and engine exhausts in the background.

Safety methods devised and employed in the Delaware Consolidated's plant rate more than mere mention. The safety factor in the company's operations plays an outstanding part. A device has been worked out which will automatically shut down the engines in case of fire in the air discharge lines. If by chance a spark from the engine ignites the mixture in the line, the heat trips a valve, letting water rush into the line, immediately exhausting the flame and simultaneously shorting the engine magneto. This device has eliminated the greatest hazard in operating air compressors, a hazard which is caused by running surplus gas not used as fuel back through the lines into the sand with the compressed air. A cylinder placed on the compressor at the discharge line acts as the water reservoir, and is connected by a short circuit plug to the magneto.

Another safety device employed by the company, which has been proved to pay for itself many times over is that used in connection with the water circulation. A lever is attached to a float in the water line on the engine. If circulation stops, the float drops, letting this lever fall onto a short circuit arrangement to ground out the magneto and kill the engine on which it is connected. This prevents the engine from over-heating, and in some extreme cases from burning up.

A safety device is used in connection with the oiling system, equipped with bearing shut-downs, which works with the oiling system somewhat like the water circulation method. All in all, the stress palced on safety by the Delaware Consolidated has entirely eliminated all damage or destruction to machinery in the company's plant in the Nowata field.

Amos L. Beaty Retires From Texas Company

New York—Amos L. Beaty, for the past 20 years actively connected with The Texas Company and chairman of the board of directors since March, 1926, has resigned from the chairmanship of the Texas corporation and announces his retirement from the board of directors. No reason was given for his action and Mr. Beaty declined to discuss his departure from the company.

From his secretary it was learned that he had stated that any discussion of his action would "not be in good taste."

No announcement has been made of his successor and it has been suggested that his post might not be filled. Until some action is taken, R. C. Holmes, president of The Texas Corporation becomes the corporation's active head.

Mr. Beaty was elected chairman of the board in March, 1926, following the retirement of E. C. Lufkin, who was forced to give up his active duties due to bad health. Prior to this Mr. Beaty held the position of president of the company for a period of about six years. His first connection with the company was in the capacity of attorney at Dallas. In 1913 he was transferred to New York as general counsel.

Aside from his duties with The Texas Company, Mr. Beaty was active in the affairs of the industry and has been very prominent in the work of the American Petroleum Institute as well as other industrial organizations. Mr. Beaty at present holds the position of treasurer with the Institute.

Mid-Continent Oil Company chemists have been invited to attend a meeting of the American Chemical Society, to be held December 29-31, at Columbus, Ohio. This will be the second gathering of this kind for discussions of subjects pertaining to organic chemistry.

Spindle Top Well Recompleted After Making Million Barrels

Operations in South Louisiana hold principal interest during week; more wildcat tests being started

By JACK LOGAN
Staff Representative

HOUSTON — Comparatively few tests were completed in the Gulf Coast region during the past week, and they were of little interest, with the exception of Rio Bravo Oil Company's T. & N. O. 2, at Spindle Top, which was deepened after producing over a million barrels of oil, and began producing again from the lower level. Interest in the Coastal country has been bolstered up, however, by operations in South Louisiana, where several new wildcats have been started and numerous others are drilling, one of them, Calcasieu Oil Company's Olevia 1, in the Kelso Bayou district, being now at a critical depth.

The new depth from which the Rio Bravo well at Spindle Top is producing is 3414 feet. It came in for an initial flow of 200 barrels from this level on December 22, the production being 31.8 gravity pipe line oil. This well was completed originally at 2715 feet on July 26, 1926; and from that time up to the time it was deepened, it produced a total of 1,054,397 barrels. It is located on a two and one-half acre lease that is famous for its productivity. From the 15 wells on this lease the Rio Bravo Oil Company has recovered nearly 4,000,000 barrels of oil.

Among the tests being drilled in virgin territory in South Louisiana, the Calcasieu Oil Company's Olevia 1, located on the Kelso Bayou seismograph dome in Cameron Parish, promises to be the first completed. It has been going down at an unusually rapid rate, and on Monday of this week was at 3660 feet, with preparations being made to take a core of the sand encountered at that level. This sand was also found in the two tests which the Calcasieu Oil Company has previously drilled in the immediate vicinity of the Olevia 1, although it was passed up. Total depth of the Caldwell 1, first well of the district, which blew out, ignited and was lost, was 4003 feet, while that of the Caldwell 2, which is a producer, is 3996 feet. Caldwell 2 was completed early in November, 1927, for an initial flow of 1000 barrels of pipe line oil. This week it is producing at the rate of about 665 barrels, 25 per cent water, flowing through a three-eighths-inch choke. In a one-hour test recently, flowing through a three-quarter-inch choke, it produced at the rate of 2850 barrels a day. The Calcasieu Oil Company's Watkins 1, which like the Olevia 1, is an offset to the Caldwell 2, was rigging up early this week.

Avery Island Test

Late last week the Louisiana Land & Exploration Company made a location for a new wildcat test in Iberia Parish, Louisiana. It will be drilled on the south side of the Avery Island salt dome, which is about 15 miles southwest of New Iberia. J. S. Abercrombie, Houston, has a contract to drill the test. There has been some drilling for oil in this vicinity in the past, and an old well which was located about one and one-half miles north of the island had a show of oil at 2600 feet, but was cased off by mistake, according to report. Salt is being mined at Avery Island, the salt at places rising to within 50 feet of the surface.

The Louisiana Land & Exploration Company is drilling two other tests in Coastal Louisiana. The Vermilion Bay 2, which is about three and one-fourth miles southwest of Cypremont Point in the waters of Vermilion Bay, Iberia Parish, was down to 450 feet in gumbo late last week. The Calcasieu Lake A-1, located about three miles from land, as is the Vermilion Bay 2, was drilling at the same time at 1250 feet in a water sand. The Calcasieu Lake A-1 is in Cameron Parish.

Starks Dome

At Starks Dome, Calcasieu Parish, the Gulf Refining Company has abandoned its Lutcher-Moore 7 after going down to 5200 feet, the greatest depth to which a test has yet been drilled in the field. Location has already been made for the Lutcher-Moore 8. It is approximately 955 feet north and 100 feet east of the center of section 19-9s-12w. The holes which were put down previous to the drilling of the Lutcher-Moore 7 ranged in depth from 4200 to 4600 feet.

Starks Dome was discovered by means of the seismograph, and the first producer of the field, Gulf's Lutcher-Moore 4, was completed at 4200 feet on January 21, 1927. The next two tests, No. 5 and No. 6, also proved to be producers; and these three wells, the only producers drilled on the dome, are still producing, their combined yield being about 240 barrels a day.

Pierce Junction

In addition to Rio Bravo's well at Spindle Top, only one other producer was completed in the Gulf Coast region during the past week, the Leonard Petroleum Company's Marland Fee 1 at Pierce Junction, which came in flowing 65 barrels a day from 4600 feet.

The only completion in South Louisiana was the Plummer Oil Company's Lyons 1, at Edgerly, which was abandoned in salt water at 3750 feet.

In Coastal Texas seven tests were completed as failures, three of them being wildcats. The wildcats were: Johnson Hardy's Hardy 1, four miles south of Conroe, in Montgomery County, abandoned at 1000 feet; the Sun Oil Company's J. R. Farmer 4, Fort Bend County, abandoned at 2500 feet in salt; and John Deering's Caney Cattle Company 1, Matagorda County, total depth 1525 feet.

At Batson the Millholme 95 of Hill & Dowell was abandoned at 1675 feet. J. S. Abercrombie & Company temporarily abandoned the West-Schenck 2 at Blue Ridge. Shaw et al abandoned their Fitzsimmons 1 at Pierce Junction in salt at 2310 feet. And Sun Oil Company's McLean 6, at Spindle Top, which had been drilled deeper, was abandoned at 5700 feet.

New locations in the Texas Gulf Coast include Sun Oil Company's J. R. Farmer 5 and H. R. Farmer 4 in Fort Bend County, on each of which the derrick has been erected, and Gulf Production Company's Wolf 7 and Trone 6 on the Long Point dome, Fort Bend County.

Roxana to Act on Option On Refinery Site

Houston—The option held by the Roxana Petroleum Corporation on 600 acres of land located on the Houston Ship Channel at Deepwater will expire January 3, and it is understood that officials of the company will be in Houston during the latter part of this week to take action on the matter.

Rumors have been persistent for some time that the Roxana will build a refinery on the Gulf Coast to handle West Texas crude. However, plans for this plant have not altered the pipe line program of the Shell Company, which calls for a line connecting West Texas with the company's main trunk system at Healdton.

At the time the Roxana took the option on the 600 acres on the Houston Ship Channel, it is reported that they were also considering locations at Beaumont and Port Arthur.

A. J. Hazlett, publisher of the Inland Oil Index, Casper, Wyoming, and a veteran oil writer who is known throughout the country by leaders in the industry, spent several days in Tulsa last week, coming south from the A. P. I. meeting in Chicago on his return to the Rocky Mountain country.

Seminole Reacts After Reaching Low Production Point

Operations in the five fields continue to decrease; wildcats south of Little River pool showing failures

By WALLACE DAVIS
Staff Representative

TULSA — Greater Seminole again stepped aside from normal performance early this week to upset production "dope" predicted by the average operator from the trend of the past month and the continued decline in operations in the five fields. After a gradual decline to 357,700 barrels on December 24, a new low mark since the peak, the total output from the five pools went to 368,800 barrels on Tuesday of this week. The fact, however, that this upward turn was not destined to continue in that trend is shown in a gain of only 300 barrels from Monday to Tuesday.

Production by field for December 19 and December 26 was as follows:

Field	Dec. 19	Dec. 26
Little River	39,407	37,760
Bowlegs	106,560	110,280
Earlsboro	144,261	142,182
Seminole City	56,244	57,465
Searight	22,337	21,105
Total	368,809	368,792

Production at Tuesday morning's gauge was from 1058 wells, showing the addition of only nine wells during the past week. Wednesday's gauge shows a decrease of two wells and a loss of 2214 barrels. This represented a well average in the area of 348 barrels, a new low average for Seminole wells, and a decrease of three barrels per well during the past week.

The upward trend, which started last Saturday, showed an increase of 6000 barrels by Sunday morning, and 2000 barrels on Monday morning.

Operations in the five pools continues to decrease, but shows a slowing up, due to the smaller number of operations as compared with the past. At the close of last week there were 139 wells drilling in the Seminole territory, nine rigs up and six locations staked. Twelve operations were inactive.

Wildcat Failures

Two evident failures on the south end of the wildcat play to the south of Little River loomed late last week to change the trend of possibilities for widening the probable productive area at this point. The importance of these discoveries lies in the fact that for several weeks both of these wildcats have stood out as potential producers, which would have lengthened the Little River extension play more than a mile south of Independent Oil & Gas Company's Harris discovery well in section 23-7-6, which early in November opened new territory with a 100-barrel-an-hour producer.

Barnsdall Oil Company's Hotulka 1, in the southeast of the northwest of the southeast of section 22-7-6, December 22 had a hole full of water while drilling at 4296 feet after topping the Wilcox sand at 4266 feet. It is about three-quarters of a mile south and west of Independent's Harris 1. With this failure looming was Mid - Continent Petroleum Company's Manuel 1, in the northeast of the southeast of the northwest of section 27-7-6, which in Wilcox at 4335-41 feet had a hole full of water with no oil showing. Barnsdall's Hotulka 1 late in the previous week made three flows of oil amounting to more than 100 barrels. A fishing job followed, but was successfully completed, and the hole was drilled ahead. In the Mid-Continent wildcat water was found at 4121 feet. Five-inch casing was run to case off the water, but water developed deeper, and continued to rise in the hole late last week.

Water trouble in these two wildcats offers operators the same proposition as in the Little River area proper, except on a broader scale. This territory is classed by operators as being an extension of the Little River area, and all of the showings in the 7-6 area is materially weakened with its outstanding water hazard. It appears destined to play little part in the possibly big production that is predicted yet to come from the Greater Seminole territory. As yet only the Barnsdall's discovery in its Fife 1, in section 14-8-5, is predicted to offer any great possibilities for a major pool among all of the new strikes made in this Wilcox territory of prolific production. This, however, is classed as a distinct pool, separated from the other wildcat discoveries by about five miles, and when the big play starts, this is believed to be the point of strongest yield.

In Seminole's five pools production continued to decline gradually at the close of last week, and the gauge for December 23 showed a loss of one well and a decrease of 3617 barrels production as compared with the previous day, with 361,795 barrels from the five areas, a new low mark since the peak. With operations gradually declining and old wells continuing to show a weakness, this decline was expected to stay in force.

The weakness of new wells in the Little River and Bowlegs fields is seen by the following operations completing near the close of the week: Amerada's Bradley 1, in the southeast of the southwest of section 9-8-6, Bowlegs, had 2000 feet of water in the hole from sand at 4258-61 feet and was unable to swab down. Carter's Fish 3, in the northeast of the northwest of the southwest of section 36-8-6, Little River, had 2000 feet of water in the hole from sand at 4400-01 feet. I. T. I. O. Company's Fay 7, in the northeast of the southeast of the northwest of section 13-8-6, Bowlegs, swabbed 65 barrels of oil from sand at 4261-71 feet. Atlantic's Grayson 4, in the southeast of the southwest of the northwest of the same section, swabbed 200 barrels December 22 from 4552-60 feet. Phillips and W. B. Pine's Pottey 1, in the northwest of the southwest of the northeast of section 35-86, swabbed 320 barrels in 10 hours from 4340-48 feet December 22. At Earlsboro Magnolia's Edmundson 2, in the northwest of the southwest of the southwest of section 3-9-5, was showing water at 4256 feet after topping the sand 10 feet higher, and was still drilling December 23.

In the Pearson Switch area Atlantic-Independent and Darby's Milburn 1, in the northeast of the northwest of the northwest of section 15-7-4, flowed an estimate of 46,000,000 cubic feet of gas from 19 feet of Hunton lime topped at 3640 feet December 22.

Burbank

On the east of Burbank field, where a wide drilling campaign is getting under way, and where recent completions have proven the strength of newly developed territory, Phillips Petroleum Company's No. 4, in the northwest of the southeast of the southeast of section 17-27-6, Osage County, had failed to find the sand at 2950 feet, and was drilling ahead December 23. The sand in this area has been topped at an average of around 2900 feet. Peters Petroleum Company's No. 8, in the southeast of the northwest of section 17-27-6, was spraying 20 barrels an hour from Burbank sand at 2901-25 feet.

Logan County

Failure of Roxana Petroleum Corporation's deepest offset location to the sensational McCully 1, discovery well in section 30-19-4w, Logan County, to increase in production Tuesday morning after reaching 6089 feet while making 70 barrels daily and still drilling, has started operators guessing as to the value of the territory around the State's deepest well. This offset is Stephens 1, located in the southwest corner of section 29. The bit was in lime at 6089 feet, 104 feet lower than the bottom in McCully 1, which continues to make better than 2200 barrels with the tools hanging in the hole. The

discovery well is in the southwest corner of the northeast of the southeast of section 30, and has been making pipe line fluid since late in June. Wilcox sand was found in Stephens 1 at 6030 feet, about 43 feet lower than it was topped in the McCully 1.

Ramsey Brothers' Smith 1, in the northeast of the southwest of section 33-18n-4w, was swabbing 75 barrels with considerable water, December 22, from Tonkawa sand found at 4119-22 feet, and a total depth of 4125 feet. The first three days production early last week averaged 180 barrels daily with seven barrels of water. Texas Pacific Coal & Oil Company's Rahe 1, in the northwest corner of section 27-18n-4w, was nearing 6200 feet early this week with no show. Welch, Acton and Brown's Hull 1, in section 11-18-4, after making a small producer at 4775 feet in Layton sand, was drilling below 4900 feet in search for the Wilcox.

New play on the eastern edge of Burbank field in Osage County is resulting from strong completions there within the past quarter and also from purchases at the December 12 sale of Indian lands in the area. On a quarter-section tract which Kewanee Oil & Gas Company bought for $405,000, in section 28-27-6, Shidler townsite, this company is starting six operations. Peters Petroleum Company late last week was preparing to complete its No. 8, in the southwest of the northwest of section 17-27-6, offsetting the Oliphant producer on the northeast. This company's No. 2, in the southeast of the southwest of the northwest of section 26-25-9, south of Pahuska, which made 500 barrels in 12 hours early last week from 2112-77 feet, is giving rise to considerable play in this area. No. 3, in the southwest of the northwest of the southwest of section 28, is a location, and Marland Oil Company is offsetting the new well with a location in the southeast of the northeast of the southeast of section 27.

Dixie Oil Company's Perkins 1, a wildcat in the southeast corner of the northwest quarter of section 15-4n-1e, Garvin County, near Pauls Valley, offered prospects of a new productive area late last week when oil and gas showed in shale and lime at 4200 feet. Hole cavings resulted in a shutdown after the possible pay developed, and the hole was being cemented over the week-end to prevent further cavings prior to drilling in. The formation is figured probably for the Hunton lime, in which event a producer might be looming. Drilling was planned to be resumed about the middle of this week.

The Oxford townsite field, including the southwest extension, had a daily average yield last week of 13,530 barrels, and new production being added daily in the area led operators to predict a rise to 20,000 barrels early in 1928. The gist of the situation there is that the southwest extension, first opened more than a month ago by Meade Brothers' Gassaway 1, a 50-barrel well, is by far a greater potential producing area than the old townsite pool. There were 35 wells on production in the field at the close of the week. Roxana's Emrich 4, on the south end of production, was making more than 2500 barrels, Emrich 7, more than 1800 barrels, while Gassaway 1-A of the Alco Oil Company was better than a 2000-barrel well. The two latter wells were completed last week.

Gulf Starting Six-Inch Pipe Line To Serve Its Gray County Leases, Texas Panhandle

Amarillo, Texas—Gulf Pipe Line Company will start work promptly on the construction of a six-inch lateral pipe line from its main line pump station at Panhandle, Carson County, to producing leases owned by Gulf Production Company in the Pampa district, Gray County. This line will require about 23 miles of pipe, and will enable Gulf to handle all of its Panhandle crude production. Gulf has about 2100 barrels of high gravity production in Gray County, and has been selling same to Sinclair Crude Oil Purchasing Company and Humble. Gulf is scheduled to complete two new wells in the prolific Bowers-Jackson area next week.

P. C. McAuley and associates scored a wildcat oil producer in western Gray County during the past week when their Morse 1 began flowing 30 barrels per hour 42 gravity oil after drilling one and one-half feet into the granite wash pay to a total depth of 2511 feet. This well is located in the north half of the southeast quarter of section 2, block 26, and three miles north of Travis et al's wildcat producer on the Bach farm. Favorable oil showings encountered by a nearby failure drilled by Holmes and associates encouraged additional drilling by McAuley.

San Angelo, Texas—Gulf Pipe Line Company is assembling materials to extend its West Texas trunk line system from the Gulf-McElroy field, Crane County, to the McCamey district, a distance of about 22 miles, in order to tie into the stub line recently built by Gulf Production Company from the Yates field to tank car rack on the Orient Railroad, near McCamey. The Yates field line required 25 miles of eight-inch pipe to reach a 50-car capacity tank car rack built by Gulf in the northwest quarter of section 2, G. C. & S. F. Railway survey, between Hurdle and McCamey, and similar sized pipe will be used in extending this line to make a connection with Gulf's trunk line system. Gulf has a contract to deliver about 5000 barrels of Yates field crude daily to Sinclair Refining Company of Louisiana in the latter's cars, and the balance of the crude runs from the Yates field will be transported via pipe line to the marketing centers by Gulf when the new pipe line unit is completed.

Gulf Production Company has purchased 10 new 80,000-barrel steel tanks to be erected immediately on its producing leases in the Hendricks field, Winkler County, to supplement the six large tanks now completed and building in the northwest quarter of section 34, block B-5, Public School Lands.

This tank building program indicates that Gulf Pipe Line Company will not extend its West Texas trunk line system to the Hendricks field at present.

Movement from West Texas Will Be Tripled in Few Weeks

(Continued from page 26)

part of the county. However, the Texas & New Mexico Railroad Company has been organized and given a charter to build an extension line from the Texas & Pacific main line at Monahans via the Hendricks field to the New Mexico line, and will start actual construction work, according to G. O. Bateman, Breckenridge, president of the new concern, as soon as application is approved by the Interstate Commerce Commission. This new concern is closely allied with the Texas & Pacific, and it is understood that shippers will be given the same freight rates on petroleum loaded on cars in the field proper as now in effect on the Texas & Pacific, thus affording a big saving in pipe line transportation costs.

Southern Pipe Line Company and Shell Pipe Line Company (Roxana) are the long distance shippers of crude from the West Texas district, and the former is making regular shipments to Standard of Indiana's plants at Sugar Creek, Mo., Wood River, Ill., and Whiting, Ind. Roxana has been making shipments from its McCamey rack to its refinery at East Chicago, Ind., paying 36½ cents per 100 pounds freight rate. Southern's shipments to Standard of Indiana have been originating at Wickett, and a rate of 37 cents per 100 pounds applies on crude moving to the Whiting plant, while a rate of 31 and 29 cents, respectively, applies on crude moving from Wickett to the Wood River and Sugar Creek plants.

Refining plants at Shreveport, La., are being given an opportunity to participate in the low-priced West Texas crude originating on the Texas & Pacific Railroad, as effective January 12, 1928, a flat rate of 20 cents per 100 pounds goes into effect on crude produced in Winkler and Howard Counties. This new rate is expected to revive interest of Shreveport plant owners in West Texas crude. The New Orleans Refining Company, which has a plant at Norco, near New Orleans, is one of the major consumers of West Texas crude via tank car delivery, having received more than 200,000 barrels during November from Southern and Roxana, and recently contracted to purchase 2,500,000 barrels of Winkler County oil from Independent Oil & Gas Company. Independent is building a pipe line and car rack to start shipments on this contract promptly.

Gulf Coast Turns to Deep Seated Domes and Structures

Development of methods of interpreting geophysical anomalies will change present conception of Gulf Coast area geology

By JOHN F. WEINZIERL,
Consulting Geologist and Advisor on Geophysical Instruments, Houston, Texas

AT the end of this year, the oil companies on the Gulf Coast find themselves facing the same perplexing problems as in 1924. Only in that year they were willing to be led away from these problems by the glittering possibilities of finding shallow domes. Today, after much drilling about newly discovered domes, oil companies are looking about for more profitable prospects for finding oil.

In better words, the deep-seated salt dome or structure fad has gotten the stage again and will probably have a longer stay since about 30 new shallow salt domes on the Gulf Coast have proven not all too encouraging.

It can be said with all justice that the present development on the two most outstanding recently reported deep-seated salt domes, Lost Lake and Sugar Land Domes are writing an important chapter in the annals of oil field history on the Gulf Coast. Furthemore, the immediate future use of the geophysical methods, seismic with its kin and gravimetric, are at stake. In other words, the development of different methods of interpretation of geophysical anomalies has led to this new venture. This can especially be said of anomalies resulting from torsion balance work.

Up until this time, with the exception of Long Point, Clemens Dome, Allen Dome, and some others, the torsion balance has had to play second fiddle. That is, it was called upon mostly to check up the findings of the seismic and geophone methods. But in the future, tables may be turned, or it will be about an even break between the two methods.

But during the time of greater geophysical exploration on the Gulf Coast when those engaged in seismic and allied work were busy wrangling over patent rights or were developing instruments for greater speed in covering acreage and attempting to reduce the dynamite consumption to little of nothing (which proved in some cases the passing up of salt domes), many torsion balance men were working on the more difficult problem of locating structures in the greater depths.

This work was especially encouraging when, after salt was found recently in the Edgerly oil field in Louisiana, it was recalled that in past work somewhat similar anomalies as were found in Edgerly oil field with the torsion balance were had in other oil fields in the Gulf Coast area where salt had as yet not been encountered.

Since 1924, many peculiar anomalies have been found and reported by different geophysical methods employed by companies. Seismic and like work, as well as gravimetric, brought out areas of greater and lesser velocities, or areas of increased and decreased densities which when reported were cast aside as not fitting into the then existing ideas of geologic conditions on the Gulf Coast.

Now the question arises why these reports were not given more consideration. The answer is simple. The geologist did not have sufficient data at hand to make up a working theory of the greater tectonic features of the Gulf Coast broad enough to take these new ideas into consideration. Hence he was not always able to interpret with the help of the geophysicist these anomalies.

This then brings us up to another point for consideration. It remains that the progress of geophysical work depends much upon the ease with which the geologist will give up his orthodox ideas and open his mind for different conceptions as suggested by comparative geophysical work.

What the future conception of Gulf Coast areal geology will be or how many times it will undergo changes is not easy to see. As a matter of conjecture, it may be said when in years to come, if oil is still of such importance as today, after more or less accurate geophysical maps have been compiled on the Gulf Coast area in conjunction with reasonably accurate subsurface maps compiled from a general agreement amongst paleontologists and subsurface geologists, that the following structural and sedimentary conditions can be worked out:

1. That the entire Gulf Coast is made up of an assembly of fault blocks which in their irregular arrangement control the local alignment of salt dome groups.

2. That each alignment or group of salt domes is super-imposed upon a larger salt mass in greater depths having a very large areal extent.

3. That geophysical work will help to determine the irregularities upon the surface of this salt mass which will be identified as the present deep-seated salt domes or structures (this then serving as an explanation for such fields as the present East Hackberry, Louisiana).

4. And that possibly work will be carried out which will probably be more important than all other in the tracing out of old shore lines in the subsurface, and in this way picking out smaller basins within the larger ones, and so explaining some of the present perplexing problems in subsurface geology. More intimate knowledge of old shore lines may lead to the finding of larger oil deposits.

In conclusion it can be said, if the present development on deep domes proves successful, that over-night many geologists and geophysicists will have to change their methods of interpretation. Since we, as human beings, are more or less prone to become orthodox in our conceptions, it may happen again and again as development in deeper drilling goes on that many of the deeper anomalies which we have laid aside today will really have a great economic value in the future.

C. H. Lane, general superintendent for the Louisiana Land and Exploration Company with headquarters in the Esperson Building, Houston, has left the employ of that company. He has not announced his plans for the future. Mr. Lane has been with the Louisiana Land and Exploration Company since it was organized and was acting in the same capacity with the Border Research Corporation before this concern was absorbed by the Louisiana Land and Exploration Company. The Louisiana Land and Exploration Company has approximately 2,000,000 acres of land in Louisiana, most of which is located in lake beds and bays and on which exploration work is now in progress. A number of wells have been drilled by the company and considerable geophysical exploration is now under way. At present the company has two wells drilling, one in Calcasieu Lake and one in Vermillion Bay, with plans for other tests in the near future. Mr. Lane is also president of the Thrift Corporation of Houston, manufacturers of hydraulic casing pulling equipment.

Water Encroachment Speeds Work In Hendricks Field

Operators arrange to get out the oil before water stops natural flow; both production and drilling operations gain during week

By H. H. KING
Staff Representative

SAN ANGELO, Texas — Appearance of a high percentage of cut oil in three flowing wells in the heart of the Hendricks field, Winkler County, during the past week will have a tendency to speed up developments to a maximum in order to recover as much oil as possible by natural flow before the encroachment of water spreads. This intrusion of water has affected wells comparatively high on structure and furnished a surprise, since these particular wells have not been flowed open for any appreciable period. However, this flush oil producing area has been generally accepted as having a water drive behind the oil. The field will reach a high mark on daily production despite the early arrival of water troubles, and is more than likely to be forced to its peak early in 1928, although operators were inclined to forestall same until next summer when more pipe lines would be available.

A small amount of water has been showing in the discovery well, which is now owned by the Southern Crude Oil Purchasing Company, and the Independent Oil & Gas Company's west offset to the latter since last June, but this was believed to be due to Independent drilling through the pay horizon. Early last week the Pure Oil Company's Grisham-Hunter 1, which is an offset to the discovery well, began making 10 per cent water and 40 per cent b.s. while making 500 barrels of fluid daily. Pure's well was completed August 5, 1927, with an estimated initial flow of 5000 barrels daily at 2838 feet, or 313 feet in the big lime horizon, but was never flowed open for lack of market outlet. The Texas Company is examining titles to buy this well and other leases in Winkler, Crane, Upton and Pecos Counties from Pure Oil Company, but has not paid off on the option dated December 10.

The encroachment of water on the Pure Oil Company's producer swept one location south to Gulf's Hendricks 1 on December 22. Gulf's well was flowing about 600 barrels daily through choke with 750 pounds pressure, and within 24 hours dropped to 250 pounds pressure followed by the appearance of 40 per cent b.s. and 6 per cent water. This well is now shut in pending the erection of a treating plant. It was completed March 25, 1927, making 2002 barrels of 29 degree gravity pipe line oil from pay at 2824-36 feet, or 298 feet in the lime. Magnolia's Hendricks 2, located more than one mile southeast of the above wells, was making 60 per cent cut oil in 1200 barrels of fluid production early this week from pay at 2865-2955 feet, or 443 feet in the lime. This latter well was reported last week as making some water with an initial flow of 2000 barrels daily flow, but it was then believed due to a leaky casing. However, an analysis of the water being produced by these wells reveals sufficient quantities of solid parts to identify same as being bottom hole water. Atlantic's west offset to Magnolia's well is also reported making some cut oil.

The cut oil in the Hendricks field is reported to respond readily to treatment with Tret-O-Lite, without raising the temperature by heating, and the operators with wells making cut oil are installing plants to cope with the situation.

Both production and drilling operations in the Hendricks field registered a gain during the past week. The field averaged 62,055 barrels daily during the week, with about two-thirds going into field storage.

Drilling was started on 10 new tests during the past week, making a total of 77 tests drilling or in process of completion.

Gulf Production Company is soon to have the largest crude tank farm in the Hendricks field, and lately purchased 10 new 80,000-barrel tanks to supplement the six tanks completed and building on its producing lease. Humble Oil & Refining Company is reported to have arranged to exchange about 7500 barrels of Hendricks field oil with Southern Pipe Line Company, with the latter delivering Humble a like amount from the Church and Fields area. This plan is of mutual benefit to both concerns, and allows Humble more time in building its eight-inch line from McCamey to Hendricks field.

Both Landreth Production Corporation and Texon Oil & Land Company are planning to start work on a pipe line from the Hendricks field to tank car rack sites in Ward County shortly.

HENDRICKS FIELD OPERATIONS

The status of operations in the Hendricks field, Winkler County, at the close of last week is shown below by companies:

Companies	Locations and Rigs	Drilling Tests	Tests in Big Lime	Completed Wells	Initial Prod.	Daily Av'ge Prod.
Amerada Petroleum Corp.	..	..	1	..	....	....
Arizona Mining and Eng. Co.	1	..	..	..	....	....
Atlantic Oil Producing Co.	1	2	5	1	3,100	6,060
Atlantic & J. D. Collett	..	1	..	..	....	....
V. T. Bolin & Company	1	..	..	..	....	....
Cranfill-Reynolds	..	1	1	2	11,500	*5,530
Eastland Oil Company	..	..	1	..	....	....
Gulf Production Co.	4	1	..	6	16,695	*3,220
Humble Oil & Ref. Co.	1	1	2	3	12,400	7,800
Independent Oil & Gas Co.	5	3	2	3	8,070	*2,120
Landreth Prod. & Roxana	1	1	1	3	10,800	9,630
Magnolia Petroleum Co.	1	1	2	2	6,000	3,205
Joe Maxwell & Turman	2	2	3	..	....	*40
Murchison & Cranfill	3	..	2	4	6,175	880
Republic Production Co.	1	1	1	1	6,000	4,320
Roxana Petroleum Corp.	2	5	4	1	10,000	*3,420
Sheldon & Burden	..	..	1	..	....	....
Southern & Westbrook	2	2	10	3	6,650	7,465
Southern & Dixie Oil Co.	..	4	6	6	7,260	*4,715
The Texas Company	1	1	5	1	5,000	*....
Texon Oil & Land Co.	..	1	3	1	4,100	3,650
Totals	26	27	50	37	113,750	62,055
Totals previous week	32	17	51	33	98,075	54,145

* Production partially pinched.

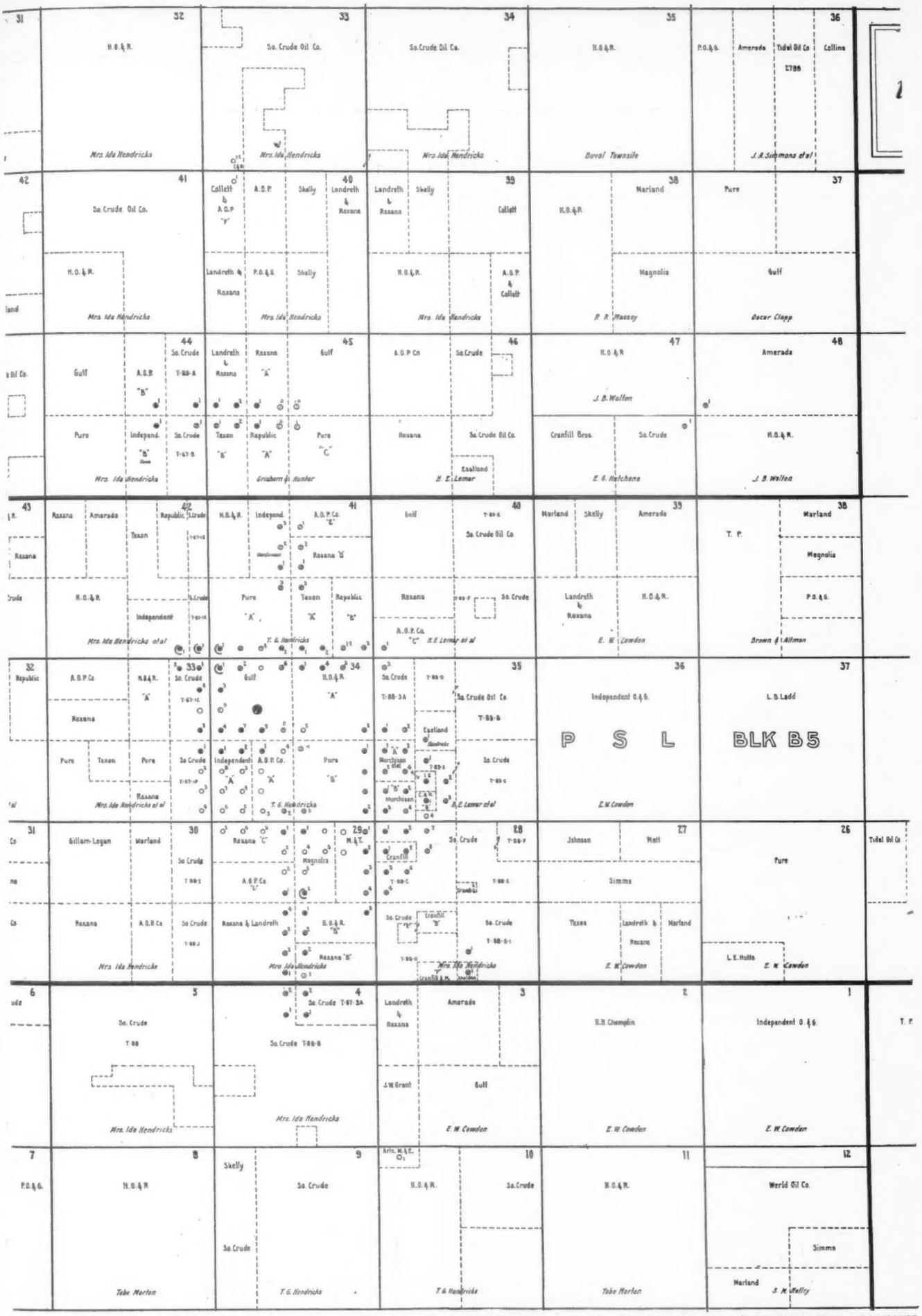
Texas Completes Tenth Dale Producer

Houston—The Texas Company's Osteen 1, at Dale, has been completed for an initial yield of 50 barrels a day, pumping. This is the tenth producing well in the field for The Texas Company, and is the second on the Osteen lease, the Osteen 2 having been completed about two weeks ago for an initial flow of 236 barrels from 2234 feet.

Early this week The Texas Company's Lackey 5 was ready to be put on the beam, and it was expected to be about a 50-barrel well, also.

The same company is drilling a wildcat about eight miles south of the Dale field, the Roebuck 1. On Monday of this week it was down to 158 feet in shale.

John W. McGee, Oklahoma geologist who is well known for his finds in the Texas Panhandle during the past few years, has recently been elected president of the Matador Oil Corporation of Amarillo.



MAP SHOWS THE COMPLETED OIL WELLS AND ACTIVE OPERATIONS IN THE HENDRICKS FIELD, WINKLER COUNTY, TEXAS. THE FIVE WELLS MAKING WATER IN THE FIELD ARE INDICATED BY A HALF CIRCLE.

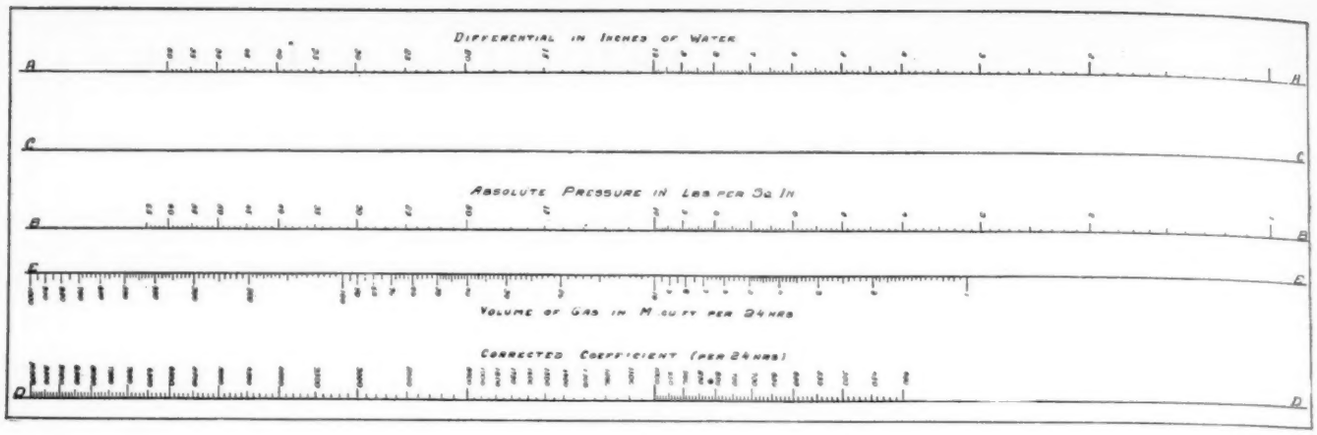


Chart Speeds Computation of Gas Line Orifice Meter Charts

THE problem of securing accuracy and speed in computing orifice meter charts where natural gas is measured by use of this instrument is one in which every company producing, transporting, or treating natural gas is interested. Much has been published dealing with the various methods in use by those engaged in the handling of gas, which has been helpful to the industry. Accuracy in computing charts is secured through the use of slide rules and computing or calculating machines, both of which methods have the advantage of greater speed over that of carrying out the necessary calculations by hand.

In computing the volume of gas which passes through an orifice meter the usual procedure consists of the use of extension tables to figure out the extension,—or the square root of static pressure times the differential drop in pressure over the orifice. Then this extension is multiplied, either by use of the computing machine or a slide rule, by the coefficient for the pipe and orifice size. The important problem with companies interested in natural gas production, natural gasoline manufacture or transportation is that of reduction of labor overhead required in the accounting or metering departments, through securing faster methods, and simpler procedure without any sacrifice of accuracy.

An interesting development along these lines is the recent perfection of a Gas Chart Calculator, developed by J. J. Kogan, engineer with the Loomis Oil Well Control Company, Long Beach, California. Through the use of this chart, which is based upon the logorithmic principle and designed in the form of a nomographic chart, those in charge of the computation of meter charts are enabled to secure the volume of gas passing through a given line with much greater speed and with equal accuracy as through the use of either the computor or the slide rule.

The Gas Chart Calculator is a simplified chart for reading or finding the volume of gas, vapor, or fluid, which passes through a recording orifice meter in a given period of time (usually 24 hours). The orifice meter records the static pressure in the line and the differential (or drop in pressure) over the orifice placed in the line. In case of fluids, where the pressure is constant, only the differential (in inches of water) is recorded, The variable static pressure and the differential are averaged, and these are assumed to then be constant for the 24 hours.

The formula used for computing the volume of gas is as follows:

$$Q = C\,V h P.$$

where,

Q=Volume of gas for 24 hours.

C=Corrected coefficient for 24 hours based on the inside diameter of the line, the size of opening in orifice plate, the specific gravity of the temperature of the gas.

h=Differential in inches of water;

P=Absolute pressure in the line, in pounds per square inch.

This well known formula is the basis of the Gas Chart Calculator.

The method of using the chart is as follows:

After obtaining the daily average differential and absolute pressure, locate them on lines "A" and "B" respectively. Joining these two points with a straight line will give a point on Line "C". With the daily corrected coefficient for the particular line and orifice plate size (corrected for specific gravity and average daily temperature of gas), locate the point on line "D". Join the points thus located on lines "C" and "D" with a straight line, and the intersection on line "E" will give the volume of gas which passed through the line in 24 hours. If hourly calculations are desired they may be secured by division. This volume of gas, as is the common practice, is corrected to 60 F. and a specific gravity of 0.600, when specific gravity of air is 1.000.

The older methods of calculating the volume of gas passing through a line consist of using either a slide rule in figuring the above equation, or the use of the familiar "extension tables" which gives the value of VhP for the different values of h and P in the formula. The extension tables are in book form, and the principle objection to their use arises from the fact that one must interpolate between points in making the calculations, which to a measure detracts from the accuracy of the operation.

The chart type of calculator as developed, and presented here, has the advantage of much greater speed than either of the other two commoner methods of computing the orifice meter charts. In the matter of accuracy it is claimed for the chart calculator that it has the same degree of accuracy as any other method and gives three, and in some instances, four place accuracy. Due to the fact that it simplifies the procedure and no great degree of training in mathematics is essential to learning its adaptation to the computing of gas volumes, the chart calculator can be readily employed to advantage and speed up the work of computation of orifice meter charts.

Joint Test

Denver, Colo.—Kinney-Coastal Oil Company and the Texas Production Company will drill a joint test on Trinidad Basin, 15 miles northwest of Walsenburg, in Huerfano County. The structure is known as Escondido Anticline and was discovered by G. W. Steffen, geologist and independent operator of Pueblo. His geology has been checked by H. W. C. Prommel and H. E. Crum for the Kinney-Coastal, and by the company geologist for the Texas Production Company. The structure is approximately three miles long and one and one-half miles wide. Equipment is being moved into the field and there will be no delay in starting operations.

A Practical Method to Evaluate Wire Rope Service[1]

By HALLAM H. ANDERSON[2]

THE mythical deed of Prometheus to bring light to the groping Earth, and the task of Hercules to release him, both fade to insignficance before the task of the American Petroleum Institute's Standardization Committee to release Wire Rope Specifications which will bring light to the groping wire rope users. These users cannot be satified with a light which will show them how to determine if a rope is good before it is run—they will also need another light which will show them how to determine if the rope was good after it is worn out. The engineer asks—"How can we determine if this brand of wire rope will give good service?" The manager asks—"How much service did this brand of wire rope give per dollar invested?" While the formal specifications are engaged to bring light on the first question, the annual papers on usage should be engaged to develop a method to answer the second.

In the usage paper[3] presented at Tulsa last December, Mr. L. B. Little directed the attention of wire rope users to the need for some comprehensive method to interpret field service data. The purpose of this paper is to describe a method developed recently by a large California operating company to determine the relative costs and services rendered by their wire rope casing lines. In consideration of the great volume of exact test work performed by the committee, this method may have a paucity of scientific merit. Possibly its only claim is that it may serve as a practical basis to compare approximately in dollars and cents the service costs of the different wire rope casing lines, but, if this can be done to the satisfaction of the operator and with reasonable fairness to the several competitive brands of wire rope compared, the method represents a big step forward.

Selections and Sample Tests

For some time the drilling organizations have realized the need for better wire rope casing lines, and possibly too often the selection of same has been influenced by unporven claims of manufacturers that an improved article is available. Manufacturers with several construction types to offer have been free to prescribe that one combination of circumstances demands one type of rope, and another condition demands a different type. Yet often two types will be sent out on one delivery with no designation as to which rope is of which type. With a selection of trade names derived principally from the rainbow, the unitiated user usually is ignorant of even the general distinguishing characteristics of the ropes received.

In the attempt to bring order out of an unsatisfactory condition, it was considered inadvisable to limit in any way the choice of lines by the ultimate users (the drilling department) until a fund of definite comparative identification, laboratory and service data could be obtained. Therefore, instead of specifying "A. P. I. Wire Rope," each wire rope purchase order contained the following clauses:

"This rope is to equal or exceed in quality the A. P. I. Specifications for Wire Rope (Stds. 9A as amended by Circular S-56), for Grade ——.

"The outer end of each line is to be double-served to allow us to cut off a five-foot sample for test.

"Please furnish us with a copy of your own A. P. I. test on each line, identifying same by the line number as marked on the delivered reel, our order number as given hereon, and the

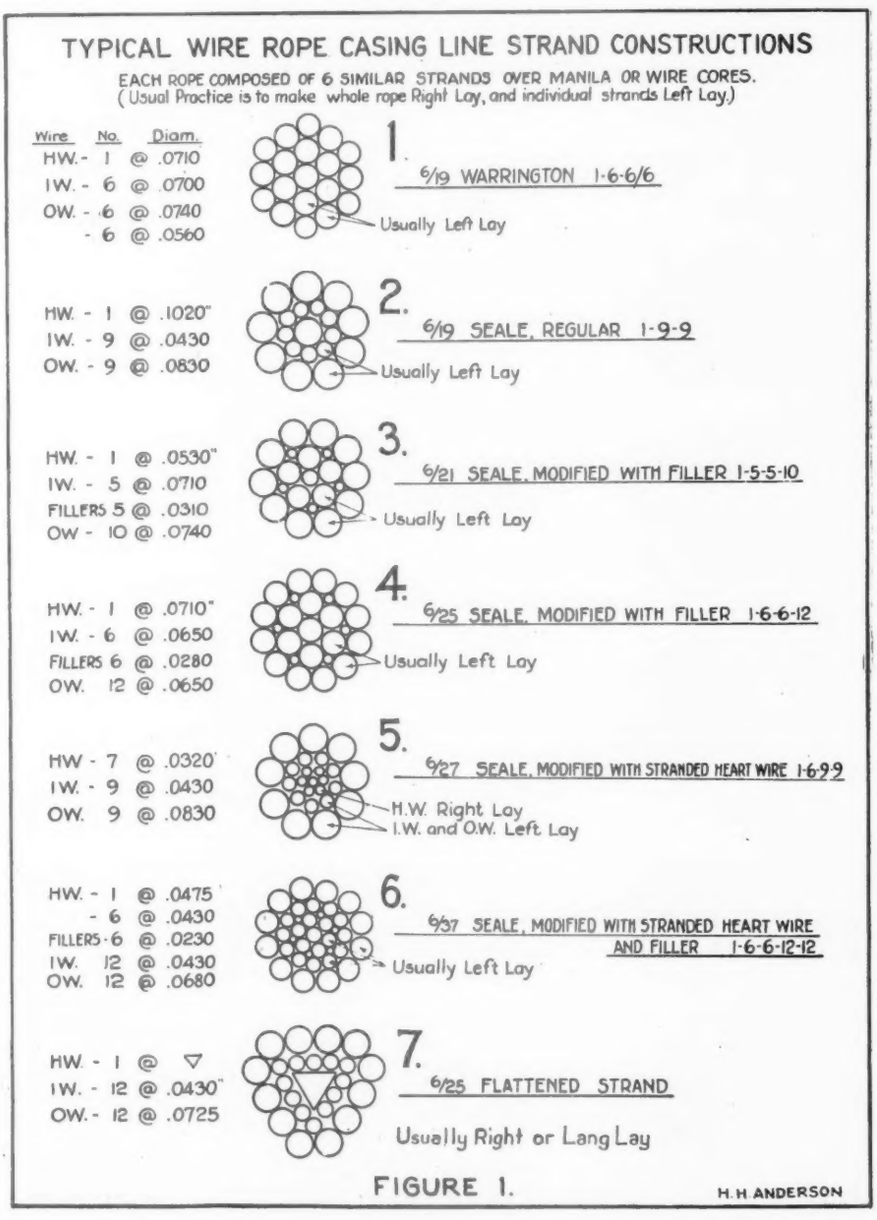

TYPICAL WIRE ROPE CASING LINE STRAND CONSTRUCTIONS
EACH ROPE COMPOSED OF 6 SIMILAR STRANDS OVER MANILA OR WIRE CORES.
(Usual Practice is to make whole rope Right Lay, and individual strands Left Lay.)
Wire No. Diam.
HW.- 1 @ .0710
IW. - 6 @ .0700
OW. - 6 @ .0740
- 6 @ .0560
1.
6/19 WARRINGTON 1-6-6/6
Usually Left Lay
HW. - 1 @ .1020"
IW. - 9 @ .0430
OW. - 9 @ .0830
2.
6/19 SEALE, REGULAR 1-9-9
Usually Left Lay
HW. - 1 @ .0530"
IW. - 5 @ .0710
FILLERS 5 @ .0310
OW - 10 @ .0740
3.
6/21 SEALE, MODIFIED WITH FILLER 1-5-5-10
Usually Left Lay
HW. - 1 @ .0710"
IW. - 6 @ .0650
FILLERS 6 @ .0280
OW. 12 @ .0650
4.
6/25 SEALE, MODIFIED WITH FILLER 1-6-6-12
Usually Left Lay
HW - 7 @ .0320"
IW. - 9 @ .0430
OW. 9 @ .0830
5.
6/27 SEALE, MODIFIED WITH STRANDED HEART WIRE 1-6-9-9
H.W. Right Lay
I.W. and O.W. Left Lay
HW. - 1 @ .0475"
- 6 @ .0430
FILLERS 6 @ .0230
IW. 12 @ .0430
OW. 12 @ .0680
6.
6/37 SEALE, MODIFIED WITH STRANDED HEART WIRE AND FILLER 1-6-6-12-12
Usually Left Lay
HW. - 1 @ ▽
IW. - 12 @ .0430"
OW. - 12 @ .0725
7.
6/25 FLATTENED STRAND
Usually Right or Lang Lay
H.H ANDERSON

FIGURE 1.

[1]Paper presented before American Petroleum Institute at Eighth Annual Meeting held in Chicago on December 8, 1927.

[2]Chief Engineer, Production Department, Shell Company of California.

[3]"Oil Field Usage, Improvements and Experience with Wire Rope Purchased on Specifications," A. P. I. Bulletin, Vo. VIII, No. 6, pp 126-132.

district to which the line is delivered."

This last paragraph afforded means to study the psychology and co-operation of the manufacturer. The majority of them complied fully and willingly, some not so willingly, and one explained that he did not sell his rope to meet A. P. I. specifications and he therefore refused to give out his own laboratory tests on it.

Upon receipt of the lines in the field storehouses, the five-foot samples were cut off and forwarded to a central point. Here certain of them were selected and sent to a local commercial laboratory for A. P. I. test. All samples were sent of the lines of the unobliging manufacturer, and a sufficient number of other samples were sent to check the available factory test records.

Construction and Physical Properties

What a revelation these test records effected! Among the 150 "one-inch casing lines" purchased during ten months from eight manufacturers there tual numbers of wires in the strands, construction, four types of core construction and several grades of material in seventeen identifiable combinations. Certainly the need for a method to determine which of these ropes gave the cheapest service was imperative.

In Figures 1 and 2 are shown the several types of strand and core construction found in these ropes. Inasmuch as they were purchased only from eight manufacturers it is quite probable that several other ingenuous combinations exist. Because of the confusing ambiguity of the general term "6/19", the various constructions in Figure 1 are designated by the actual numbers of wires in the strans, which range from 19 to 37. It is too early to draw conclusions as to which types of strand construction give best service in heavy rotary drilling work, but there is evidence to support a tentative opinion that types 2, 3 and 4 are best adapted for these conditions. Most of the ropes are made with "all-manila" cores, but some of the standard brands have been furnished specially with combination "wire-and-manila" cores to prevent a tendency shown by certain of the "all-manila" cores to stretch or break and allow the rope to attenuate.

The A. P. I. tests for tensile strengths, torsions and bends were received from the manufacturers and the local laboratory. Considerable variations in physical properties of different reels of the same brand of rope were found, such as the following:

Casing Line No.	Identity	Average Tensiles Inside	Average Tensiles Outside	Average Torsions Inside	Average Torsions Outside	Average Bends Inside	Average Bends Outside
11	C-2-Plow	221,900	217,200	33	30	55	9
6	C-2-Plow	264,500	243,500	31	31	54	9
26	F-3-Imp. Plow ..	241,300	242,600	36	36	14	13
20	F-3-Imp. Plow ..	269,400	266,600	31	35	11	11

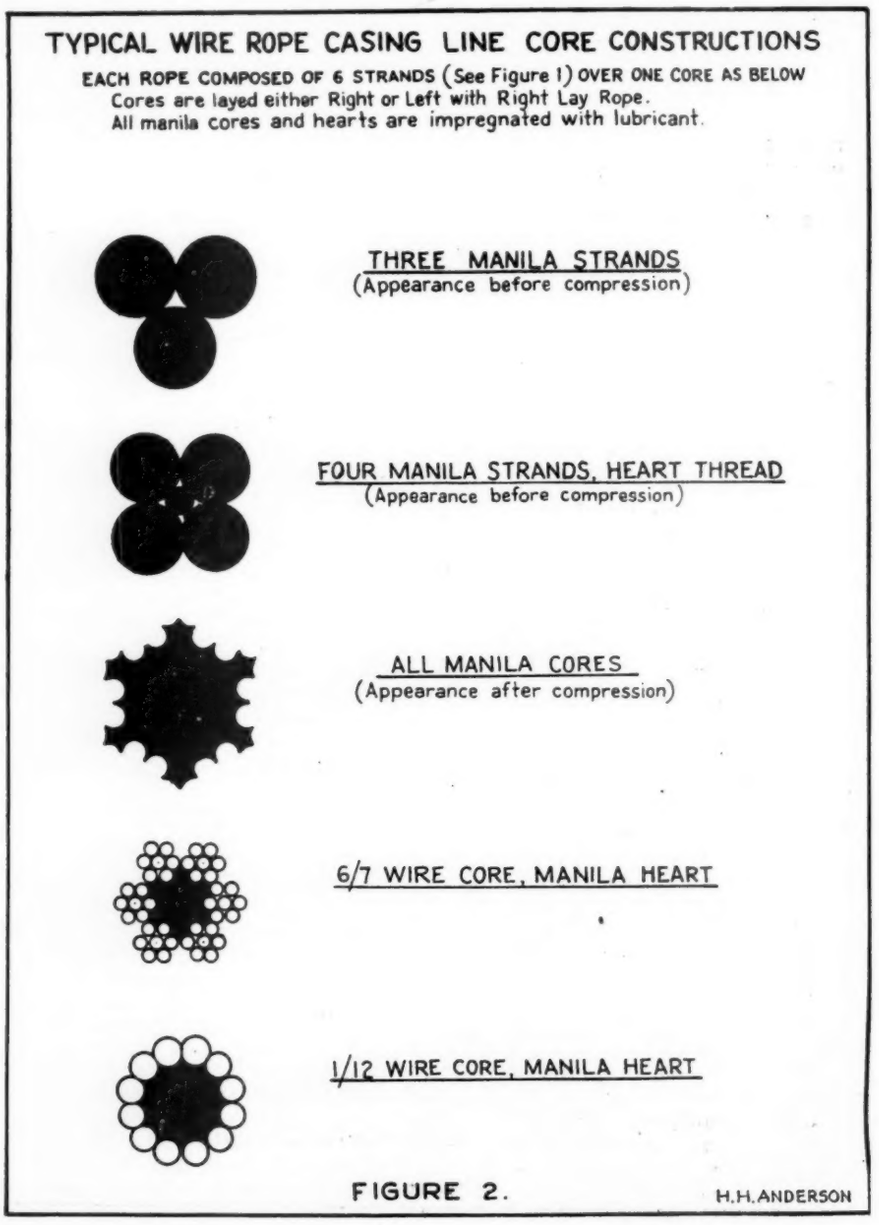

TYPICAL WIRE ROPE CASING LINE CORE CONSTRUCTIONS
EACH ROPE COMPOSED OF 6 STRANDS (See Figure 1) OVER ONE CORE AS BELOW
Cores are layed either Right or Left with Right Lay Rope.
All manila cores and hearts are impregnated with lubricant.
THREE MANILA STRANDS
(Appearance before compression)
FOUR MANILA STRANDS, HEART THREAD
(Appearance before compression)
ALL MANILA CORES
(Appearance after compression)
6/7 WIRE CORE, MANILA HEART
1/12 WIRE CORE, MANILA HEART
H.H.ANDERSON

FIGURE 2.

It is as yet too early to draw definite conclusions as to the practicability of the A. P. I. tests to establish the relative value of a line prior to its use, though the comparatively meager fund of available field service data does indicate several outstanding parallels of cause and effect which involve largely the factors of physical properties of the materials.

Evaluation of Rope Service

No matter how careful the efforts or how exacting the procedure developed to estimate the merit of a wire rope before it is run, it is necessary to develop some method to evaluate the service of the rope after it is worn out. The evaluation of labor service or of machine operation service usually is based upon the cost of work performed, and it is quite natural that "work"—the product of force or weight times distance (the true physical meaning)—should present itself as a unit capable of being priced. The most logical basis for comparison should be "the cost per unit of work performed."

The function of a casing line is to transmit "work" to hoist and lower weights. In both operations a certain amount of work is transmitted. Though the work done on the pipe, elevators, hook and block during the lowering operation is algebraically negative, the work transmitted by the wire line to resist their free-fall is approximately the same as that transmitted to raise them an equal distance. The above reasoning suggested the practical plan to measure and sum up in simple units all of the work transmitted to raise and lower the pipe, elevators, hook and block, etc., by each line during its entire period of service, and to express this work in "ton-miles" as a unit of convenient size.

Many Factors Influence Service of the Line

To calculate with scientific accuracy the exact amount of work performed

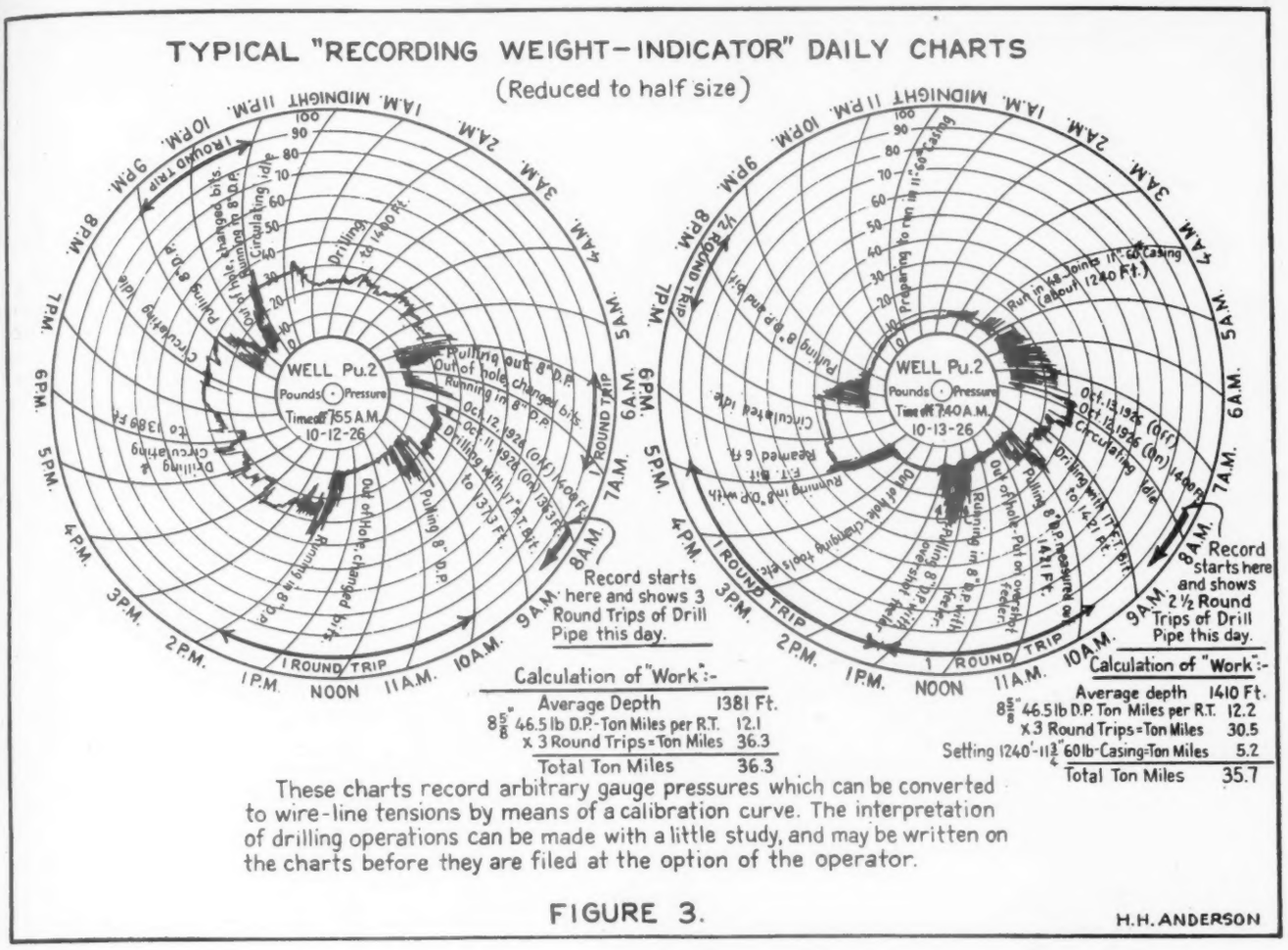

TYPICAL "RECORDING WEIGHT—INDICATOR" DAILY CHARTS
(Reduced to half size)
WELL Pu.2
Pounds Pressure
Time off 7.55 A.M.
10-12-26
Record starts here and shows 3 Round Trips of Drill Pipe this day.
Calculation of "Work":-
Average Depth 1381 Ft.
8 5/8" 46.5 lb D.P.-Ton Miles per R.T. 12.1
x 3 Round Trips=Ton Miles 36.3
Total Ton Miles 36.3
WELL Pu.2
Pounds Pressure
Time off 7.40 A.M.
10-13-26
Record starts here and shows 2½ Round Trips of Drill Pipe this day.
Calculation of "Work":-
Average depth 1410 Ft.
8 5/8" 46.5 lb D.P. Ton Miles per R.T. 12.2
x 3 Round Trips=Ton Miles 30.5
Setting 1240'-11 3/4" 60 lb-Casing=Ton Miles 5.2
Total Ton Miles 35.7
These charts record arbitrary gauge pressures which can be converted to wire-line tensions by means of a calibration curve. The interpretation of drilling operations can be made with a little study, and may be written on the charts before they are filed at the option of the operator.

FIGURE 3. H.H. ANDERSON

by a casing line is an almost impossible task. There are so many factors which may influence the result that one is lost in a bewildering maze of variables. Some of these latter which have been suggested by critics of the present-described method are:

1. Flotation of drill-pipe by mud-laden fluid.
2. Frictional drag of pipe on walls of hole.
3. Weight of pipe lifted.
4. Depth from which pipe is lifted.
5. Length of line purchased.
6. Number of lines strung in blocks.
7. Line-speed on fast sheave.
8. Diameter and length of drum.
9. Diameter and arrangement of block sheaves and material of same.
10. Temperature and humidity.
11. Type of prime mover, and horsepower of same.
12. District in which well is drilled.
13. Drillers' eccentricities.
14. Three-o'clock fag, etc., etc.

It is conceded that at least two of the above-named factors may influence the results materially, but it appears useless to attempt to study their various effects without the selection of some fundamental unit as a basis for comparison. Irrespective of other considerations, the lines will be discarded by the drillers when in their opinions they become dangerously worn, and there is little use to split hairs on methods of measurement when the largest factor involved is human judgment. However, it is comparatively simple to determine approximately the work in "ton-miles" transmitted by the line to raise and lower the pipe, elevators, blocks and hook if the pipe is assumed to hang free in the hole. This determination effects the exclusion of the many confusing variables which cannot all at one time be allowed for. Simultaneously, other pertinent data can be obtained concerning the other influencing factors, and an attempt may be made later to determine how they cause the total work transmitted by individual lines to vary from the average total service rendered by other lines of the same brand.

Method by Which Total Service is Determined

Instruments which will sum up the total ton-miles of work transmitted by a line are not readily available. However, recording weight indicators can be used to record how often the drill strings, etc., are pulled and lowered. They usually are attached to the dead ends of the casing lines to indicate the tensions in the lines at all times. These tensions can be reported to the driller by menas of indicating pressure gauges placed conveniently, and they can be recorded for later consideration by recording pressure gauges placed where they will be free from vibration. The use of 24-hour charts are most convenient, and they assure the daily inspection of the gauges.

Two typical and consecutive daily records from a recording weight indicator are shown in Figure 3. These 24-hour charts indicate to the initiated just what principal operations occurred during the periods. Aside from showing the tension on the casing line at all times, these charts permit one to determine how many times each day the drill pipe was pulled out of and run into the hole. Common parlance is to call one "pull out" and the subsequent "run in" a "round trip." The records show how many round trips of the pipe were made and at what times. From the time at which these occurred, the corresponding depths of the hole can be determined by reference to the driller's log. The weights handled can be quite accurately determined from the calibration charts furnished with each instrument, but if the depth of the hole, the weight per foot of the drill pipe, and the weight of the elevators, hook and blocks are known, the approximate work transmitted by the line can be determined directly from a simple chart with sufficient accuracy for the problem at hand.

Although every progressive operator should appreciate that the installation of a recording weight indicator in each rig is an excellent investment, this on account of the fund of valuable general information which it gives to the drillers and to the management concerning the drilling operation, its use

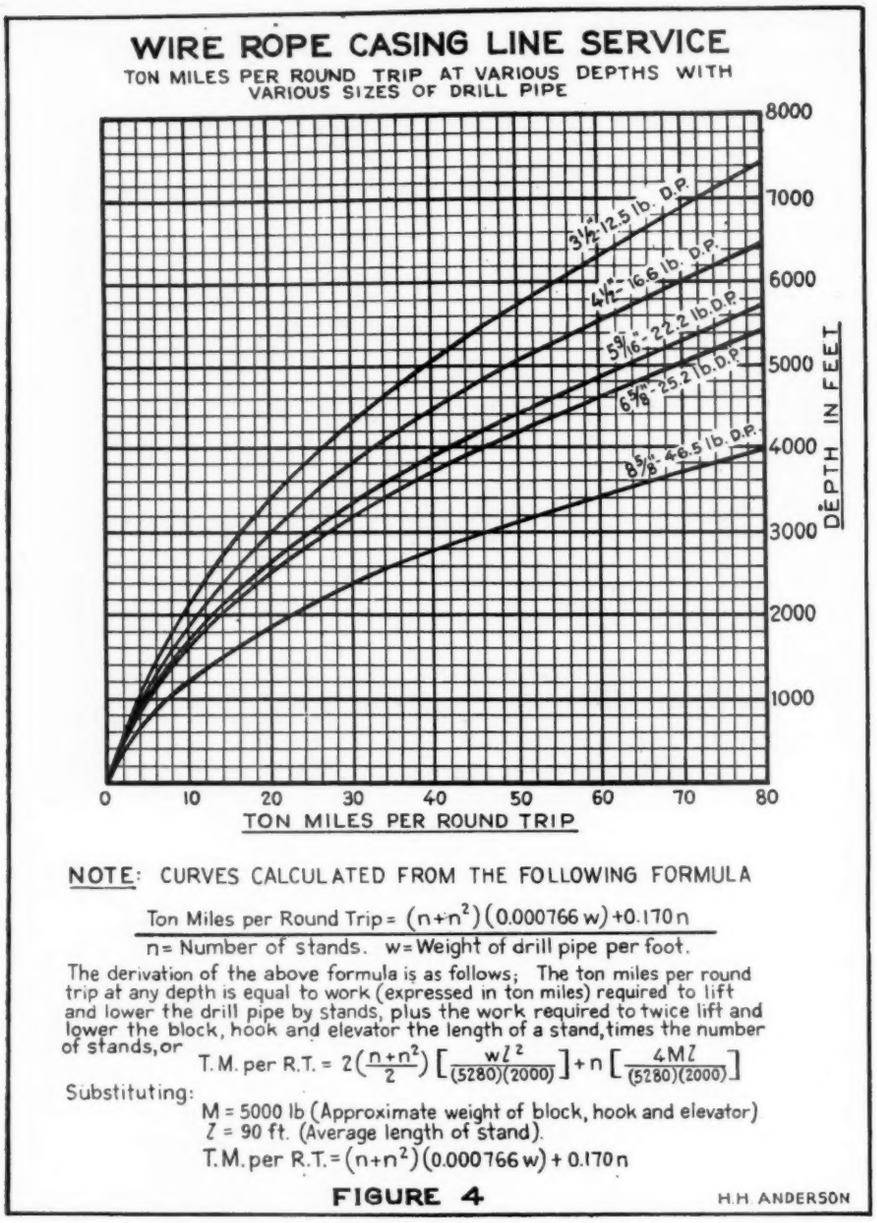

WIRE ROPE CASING LINE SERVICE
TON MILES PER ROUND TRIP AT VARIOUS DEPTHS WITH VARIOUS SIZES OF DRILL PIPE
3½"-12.5 lb. D.P.
4½"-16.6 lb. D.P.
5⅜"-22.2 lb.D.P.
6⅝"-25.2 lb.D.P.
8⅝"-46.5 lb. D.P.
DEPTH IN FEET
8000
7000
6000
5000
4000
3000
2000
1000
0 10 20 30 40 50 60 70 80
TON MILES PER ROUND TRIP
NOTE: CURVES CALCULATED FROM THE FOLLOWING FORMULA
Ton Miles per Round Trip = (n+n²)(0.000766 w)+0.170 n
n = Number of stands. w = Weight of drill pipe per foot.
The derivation of the above formula is as follows; The ton miles per round trip at any depth is equal to work (expressed in ton miles) required to lift and lower the drill pipe by stands, plus the work required to twice lift and lower the block, hook and elevator the length of a stand, times the number of stands, or
T.M. per R.T. = 2(n+n²/2)[wl²/(5280)(2000)]+n[4Ml/(5280)(2000)]
Substituting:
M = 5000 lb (Approximate weight of block, hook and elevator)
l = 90 ft. (Average length of stand).
T.M. per R.T. = (n+n²)(0.000766 w) + 0.170 n

FIGURE 4 H.H. ANDERSON

is not essential to the successful application of the present-described method to evaluate wire line service costs. Although propably not as reliable, to require the drillers to write in on their daily drilling logs the number of round trips made and the depth at which each was made is a satisfactory plan to secure the simple fundamental data necessary for the calculation of work in ton-miles transmitted by the casing lines.

A large chart, similar to Figure 4, was prepared to simplify the calculation of the amount of work in "ton-miles" transmitted by the casing line during each round trip to "pull out" and "run in" the string of drill pipe, which is assumed to be suspended free in the hole. The curves on this chart can be calculated by means of either one of the following working formulae:

$$\text{"Ton Miles per Round Trip} = (n+n^2)\ (0.000766\ w) + 0.170\ n$$

$$\text{or} = \frac{L\ (20{,}000 + w\ L)}{10{,}560{,}000}$$

where

n=number of 90-foot stands of drill pipe in string, or

L=length of string of drill pipe in feet, and

=weight per foot of drill pipe.

This particular working chart is developed for operations in 115- and 122-foot derricks where stands of drill pipe 87 to 93 feet in length are used. It allows also for the work transmitted to raise and lower elevators, hook and blocks (weight approximately 5000 pounds) once for each stand of pipe "pulled out" or "run in." The fundamental formula is derived as shown also in Figure 4, and curves can be developed for any other average conditions which may exist in the operations of a particular district. Similar curves, not shown, have been developed to calculate the work transmitted to set strings of casing by means of the following formula:

$$\text{Ton Miles per String} = \frac{L\ (20{,}000 + w\ L)}{21{,}120{,}000}$$

where

L=length of string of casing in feet, and

w=weight per foot of casing.

The chart and formula show the work transmitted during each round trip only. From the number of round trips made each day and the depths at which each occurred, the total work transmitted each day may be calculated. A brief example is given below of the calculation of the ton-miles of service rendered by a casing line over a 10-day period:

Drill pipe used: 6⅝ inches, 25.2 lb., A. P. I.
Date new line put on: February 8.
Calculation of work in ton-miles (ton-miles per round trip taken from chart in Figure 4):

Date 1927	No. of round trips	Average depth—ft.	Ton-miles per round trip	Ton-miles for day
Feb. 8	4½	875	3.7	16.6
" 9	2½	895	3.8	9.5
" 10	3½	975	4.3	15.0
" 11	3	1065	5.0	15.0
" 12	5½	1160	5.7	31.3
" 13	2½	1280	6.6	16.5
" 14	1	1430	8.0	8.0
" 15	3	1490	8.4	25.2
" 16	0	1500	8.5	0.0
" 17	2	1525	8.8	17.6
Total ton-miles of service for ten-day period				154.7

This line was not worn out after ten days of service, but the example is curtailed for the sake of brevity. The last 10-day period of service of the same line, rendered while continuous coring and reaming was in progress at a greater depth, is shown below:

Drill pipe used: 6⅝ inches, 25.2 lb., A. P. I.
Calculation of work in ton-miles (ton-miles per round trip taken from chart in Figure 4):

Date 1927	No. of round trips	Average depth—ft.	Ton-miles per round trip	Ton-miles for day
Apr. 27	5½	3150	30.0	165.0
" 28	3½	3175	30.5	106.7
" 29	4½	3215	31.2	140.8
" 30	5	3265	32.1	160.5
May 1	4½	3310	33.0	148.5
" 2	4	3350	33.6	134.4
" 3	3½	3380	34.2	120.0
" 4	4½	3420	35.0	157.5
" 5	4½	3455	35.6	160.0
" 6	3	3480	36.1	108.3
Total ton-miles of service for ten-day period				1401.7

By comparison with the first 10-day period above, it will be noted that during the last 10-day period the line transmitted almost 10 times as much work to raise and lower the drill-pipe, elevators, blocks and hook. The futility of an attempt to use "days of service" as a basis of comparison is clearly evident.

Cost per Ton-Mile is Basis of Service Comparisons

Let it be assumed that the above line was a 2500-foot plow steel casing line which cost $0.25 per foot or $625.00 for the whole length. Assume that the total service rendered or work transmitted by the line prior to its removal was 3125 ton-miles. Then the cost per ton-mile of the service rendered by this particular line can be evaluated

TYPICAL RECORDS OF ONE INCH WIRE ROPE CASING LINES

SIX EACH OF FOUR TYPES COMPARED.

IDENTIFICATION

LINE NO	DISTRICT	MANUFACTURER	ORDER	REEL No	LENGTH	TYPE OF ROPE: TRADE NAME	MATERIAL	CONSTRUCTION	A.P.I. GRADE	COST PER FOOT	TOTAL COST
8	5	C	26826	145-1	2500'	2	PLOW	6/19 SEALE, REGULAR 1-9-9 1-102" 9-043" 9-083"	J	0.25	625.00
10	1	"	29232	161-1	"	"	"	"	"	"	"
12	4	"	33635	120-5	"	"	"	"	"	"	"
13	5	"	34427	120-4	"	"	"	"	"	"	"
14	2	"	38307	175-4	1385'	"	"	"	"	"	351.50
72	6	"	39145	202-2	2500'	"	"	"	"	"	625.00
										TOTAL	$3456.50
53	1	E	29261	1715	2500'	L	PLOW	6/19 WARRINGTON 1-666 1-071" 6-070" 6-074" 6-066"	J	0.25	625.00
54	1	"	"	1716	"	"	"	"	"	"	"
56	2	"	32,421	118	1385'	"	"	"	"	"	331.50
57	2	"	33,468	120	"	"	"	"	"	"	"
59	2	"	37,681	1805-3	"	"	"	"	"	"	"
60	2	"	"	443	1150'	"	"	"	"	"	287.50
										TOTAL	$2532.00
9A	1	F	—	573	2500'	3	IMP. PLOW	6/21 SEALE, MODIFIED 1-65-10 1-065" 6-071" 6-031" 10-074"	H	0.35	874.00
16	1	"	22424	665	"	"	"	"	"	"	"
19	1	"	27440	687	"	"	"	"	"	"	"
28	1	"	27918	646	"	"	"	"	"	"	"
86	2	"	34624	728	1325'	"	"	"	"	"	472.50
90	3	"	35152	378A	1500'	"	"	"	"	"	525.00
										TOTAL	$4493.50
17A	1	J	1	1386	2500'	4	IMP. PLOW	6/25 SEALE, MODIFIED 1-64-12 1-070" 6-065" 6-068" 12-065"	H	0.35	874.00
18A	1	"	—	1387	"	"	"	"	"	"	"
29	3	"	20465	1522-1	"	"	"	"	"	"	"
31	3	"	"	1522-3	"	"	"	"	"	"	"
39	3	"	29149	1652	"	"	"	"	"	"	"
41	3	"	33950	1767-1	1350'	"	"	"	"	"	472.50
										TOTAL	$4842.50

LABORATORY TESTS

TEST MADE	ROPE LAY LGT	STRAND LAY DIRECT	CORES LGT	CORES DIRECT	CORES MAT'L	CORES LAY	WIRES	TENSILE STRENGTH MAXIMUM	TENSILE STRENGTH MINIMUM	TENSILE STRENGTH AVERAGE	AVER TWIST IN 100 DIA	AVER BENDS
LOCAL	6"	RIGHT	2314	LEFT	MANILA	RIGHT	I.W	233 471	210 635	219 487	34	56
							O.W	256 533	226 231	233 978	30	8
MFR	6⅝"	"	2⅞	"	"	"	I.W	248 492	224 249	235 382	31	64
LOCAL	6½	"	3"	"	"	"	I.W	268 761	224 921	253 809	31	60
							O.W	240 882	233 083	237 102	30	9
MFR	6¾"	"	2⅞"	"	"	"	O.W	252 330	239 475	245 720	33	55
LOCAL	7"		2¾"		"	"	I.W	291 282	225 645	271 972	29	9
							O.W	250 061	279 260	236 877	33	44
MFR	6¼"	"	2⅞"	"	"	"	O.W	253 882	240 159	245 535	31	65
LOCAL	6⅞"	"	2⅞	"	"	"	I.W	290 680	255 902	270 166	31	47
							O.W	247 603	228 255	233 242	30	8
MFR	6¼"	"	2⅞"	"	"	"	O.W	253 882	240 159	245 555	31	53
LOCAL	6¾"	"	3"	"	"	"	I.W	249 663	203 773	231 590	30	65
							O.W	220 852	203 512	213 839	32	9
MFR	6¼"	"	2⅞"	"	"	"	O.W	237 893	221 219	230 342	38	64
							I.W	265 832	242 144	253 979	32	103
MFR	6¼"	"	2¼"	"	"	"	I.W	253 882	244 704	250 202	31	30
MFR	5⅛	RIGHT	2⅛	LEFT	MANILA	LEFT	I.W	238 000	223 000	228 000	43	
							O.W	240 000	224 000	229 000	36	
							I.W	246 000	234 000	234 000	31	
MFR	5⅛"	"	2⅛"	"	"	"	O.W	243 000	229 000	231 500	34	
LOCAL	5½		2⅝"	"	"	"	I.W	244 134	218 297	235 749	33	12
							O.W	243 967	217 263	233 396	29	21
MFR	5¼"	"	2⅞"	"	"	"	W+OW	242 000	219 000	231 000	36	
							I.W	242 000	225 000	234 000	35	
MFR	6"	"	3"	"	"	"	O.W	234 000	215 000	226 500	33	
							I.W	244 000	235 000	238 000	29	
MFR	5¾"	"	2⅝"	"	"	"	O.W	277 000	225 000	239 000	52	
							I.W	250 000	227 000	235 000	31	
MFR	5⅛"	"	2⅛"	"	"	"	O.W	244 000	212 000	229 000	34	
			NO LABORATORY DATA AVAILABLE									
LOCAL	6⅜"	RIGHT	2⅝"	LEFT	MANILA	LEFT	I.W	272 567	255 102	265 919	35	14
							FILL	287 433	267 632	278 131	37	152
							O.W	266 798	249 718	256 455	35	12
LOCAL	6⅜"	"	2½"	"	"	"	I.W	279 012	249 016	265 809	34	11
							FIL	292 566	251 953	272 722	35	154
							O.W	272 376	241 784	256 571	33	12
LOCAL	7"	"	2¾"	"	"	"	I.W	271 970	252 045	263 615	36	11
							FIL	299 919	249 805	270 811	36	169
							O.W	271 040	245 114	256 113	36	11
LOCAL	7"	"	2¾"	"	"	"	I.W	256 172	226 456	241 289	36	14
							FIL	278 698	268 795	270 515	37	115
							O.W	251 114	224 375	242 659	36	13
			NO LABORATORY DATA AVAILABLE									
			NO LABORATORY DATA AVAILABLE									
LOCAL	6⅛"	RIGHT	3"	LEFT	MANILA	LEFT	I.W-OW	289 290	253 744	270 681	37	22
							FIL	261 484	237 532	242 456	36	103
MFR	6"	"	3⅛	"	"	"	W-OW	271 000	245 000	260 000	35	
							W-OW	271 000	267 000	261 000	36	
MFR	6"	"	3⅛"	"	"	"	FIL	261 000	209 000	224 000	16	
							I.W	258 000	225 000	245 000	22	
MFR	6"	"	3"	"	"	"	O.W	285 000	251 000	268 500	31	
							I.W	287 000	266 000	276 000	31	
MFR	6"	"	3"	"	"	"	O.W	277 000	257 000	266 000	31	

FIELD SERVICE

WELL NAME	DATE INSTALLED	INDIVIDUAL SECTION: DEPTH DRILLED FROM	DEPTH DRILLED TO	LENGTH CUT	ROUND TRIPS	BIT OR REAMER PIPE	DIAM. OF LINES	DIAM. OF DRUM	SERVICE DATA: CROWN BLOCK TYPE	CROWN BLOCK DIA. SHEAVE	TRAVEL BLOCK TYPE	TRAVEL BLOCK DIA. SHEAVE	TON MILES	COST PER TON MILE	TOTAL TON MILES	SERVICE COST PER TON MILE	REMARKS
Co. 1	4-14-27	2685'	3514'		169	6"		16"	F(RB)	30"	J(RB)	32"			4256	0.1467	ON HILO DRIVE
E. 14	5-7-27	4159'	5487'	1000'	74	5¾"		16"	A	24"	H(RB)	36"			3877	0.1615	
M. 1	6-26-27	5485'	6220'		59	4"		16"	A	24"	H(RB)	36"			3776	0.1657	
Co. 1	5-29-27	3514'	4050'		96	5"		16"	F(RB)	30"	J(RB)	32"			3502	0.1784	ON HILO DRIVE
Cr. 8	1-18-27	4811'	5084'		25 7	5" 4"		18"	A	24"	H(RB)	36"			1669	0.1580	
Co. 1	7-25-27	4050'	4285'		106	5"		16"	F(RB)	30"	J(RB)	32"			3180	0.1969	ON HILO DRIVE
															TOTAL - 20,260	$ 0.1710 - AVERAGE FOR TYPE	
G. 23	6-13-27	5073'	5728'	800'	31	4"		16"	F(RB)	26"	H(RB)	36"			1725	0.3630	
E. 11	6-8-27	4431'	5343'	1000'	48	4"		16"	A	24"	J(RB)	32"	X140				
E. 12	8-6-27	6215'							A	24"	J(RB)	32"	57		2197	0.2850	
Cr. 7	5-30-27	4287'	5389'		21	4"		16"	B	30"	H(RB)	36"			1167	0.2840	
Cr. 10	6-15-27	4173'	4889'		28	5"		20"	A	24"	H(RB)	36"			1243	0.2660	
Cr. 10	7-6-27	4889'	5333'		6	5"		20"	A	24"	H(RB)	36"			1807	0.1770	
A. 13	8-25-27	5190'	5590'		31	5"		18"	A	24"	H(RB)	36"			1384	0.2075	
															TOTAL - 9,521	$ 0.2795 - AVERAGE FOR TYPE	
G. 23	1-17-27	3642'	4105'		110	5¾"		14"	F(RB)	26"	H(RB)	36"			3623	0.2420	FISHING 82 TRIPS
E. 12	3-30-27	5735'	6215'	120'	25	4"		14"	A	24"	J(RB)	32"	1448				
E. 10	6-24-27	4485'	4620'	300'	54	4"		14"	A	24"	H(RB)	36"	2286		3954	0.2215	
E. 15	6-18-27	4476'	5357'	900'	67	4"		16"	A	24"	H(RB)	36"	3361				
T. 22	8-21-27	73'	2675'		75	5+6"		20"	A	24"	H(RB)	36"	590		3951	0.2216	
T. 16	4-4-27	6335'	6335'		1	4"	8	14"	A	24"	H(RB)	36"	77				
G. 23	4-23-27	3991'	5065'	600'	92	4"		14"	F(RB)	26"	H(RB)	36"	3577		3654	0.2395	
Cr. 8	6-16-27	4164'	4811'		36	5"		18"	A	24"	H(RB)	36"			1897	0.2495	
Col. 40	7-31-27	6481'	6805'		35	5"	8	18"	A	24"	H(RB)	36"	2408				
O. 14	9-30-27	0'	380'		5	8"	6	18"	A	24"	H(RB)	36"	5		2413	0.2175	
															TOTAL - 19,492	$ 0.2300 - AVERAGE FOR TYPE	
T. 18	1-8-27	3732'	5775'	600'	8	5¾"		18"	F(RB)	30"	H(RB)	36"			4094	0.2140	
G. 23	3-11-27	3880'	3880'	1350'	116	5+4"		14"	F(RB)	26"	H(RB)	36"			3749	0.2335	
Pu. 2	3-12-27	4632'	4928'		80	4"	8	18"	A	24"	H(RB)	30"			3741	0.2338	DIESEL ENGINE DRIVE
F 5	3-20-27	4423'	5210'		64	4"	8	18"	A	24"	H(RB)	36"	2338				
O. 10	6-10-27	3580'	4720'		28	3"	6	18"	A		H(RB)		843		3281	0.2675	
Col. 40	6-5-27	6062'	6491'		66	3"	8	18"	A	24"	H(RB)	30"			3961	0.2205	
O. 10	7-8-27	4720'	4978'		53	3"	6	18"	A	24"	H(RB)	36"			1890	0.2500	
															TOTAL - 20,716	$ 0.2390 - AVERAGE FOR TYPE	

SERVICE COMPARISON

FIGURE 5.

H. H. ANDERSON

TYPICAL RECORDS OF ONE INCH WIRE ROPE CASING LINES

SEVEN PLOW AND NINE IMPROVED PLOW TYPES COMPARED

IDENTIFICATION

LINE No.	DISTRICT	MANUFACTURER	ORDER	REEL No	LENGTH	TYPE OF ROPE: TRADE NAME	MATERIAL	CONSTRUCTION	API GRADE	COST PER FOOT	TOTAL COST
57	2	E	33468	170	1325'	1	PLOW	6/19 WARRINGTON 1-6-6-6 1-071" 6-070" 6-071" 6-056"	J	0.25	331.50
13	5	C	34427	120-4	2500'	2	"	6/19 SEALE REGULAR 1-9-9 1-102" 9-043" 9-083"	J	"	625.00
1	1	A	36755	852 B	2500'	2	"	6/19 SEALE REGULAR 1-9-9 1-086" 9-043" 9-081"	J	"	625.00
6A	1	H	18000	608 A	2500'	2	"	6/19 SEALE REGULAR 1-9-9 1-102" 9-043" 9-083"	J	"	625.00
28	1	G	20176	304-B	2500'	2	"	6/19 SEALE REGULAR 1-9-9 1-095" 9-043" 9-082"	J	"	625.00
4	1	B	21,978	112 S	2500'	4	"	6/25 SEALE MODIFIED 1-6-6-12 1-071 5" 6-065" 6-078" 12-065"	J	"	625.00
42	1	E	23.261	1749	2500'	4	"	6/28 SEALE MODIFIED 1-6-6-12 1-070" 6-065" 6-028" 12-065"	J	"	625.00
48	2	J	24,487	1618	1190'	1	IMP PLOW	6/19 WARRINGTON 1-6-6-6 1-071" 6-070" 6-074" 6-056"	H	0.35	402.50
44	2	J	21.724	1523-2	1150'	2	"	6/19 SEALE REGULAR 1-9-9 1-102" 9-043" 9-083"	H	"	402.50
61	3	L	38231	1866	1350'	3	"	6/21 SEALE MODIFIED 1-5-5-10 1-055" 5-074" 5-032" 10-074"	H	"	472.50
19	1	F	27,440	681	2500'	3	"	6/21 SEALE MODIFIED 1-5-5-10 1-053" 5-071" 5-031" 10-074"	H	"	874.00
63	2	B	417594	234-B	1250'	4	"	6/25 SEALE MODIFIED 1-6-6-12 1-078" 6-072" 6-025" 12-072"	H	"	437.00
20A	1	K	19000	1474	2500'	4	"	6/25 SEALE MODIFIED 1-6-6-12 1-070" 6-065" 6-028" 12-065"	H	"	874.00
21	3	K	20465	1722-3	2500'	4	"	6/25 SEALE MODIFIED 1-6-6-12 1-070" 6-065" 6-028" 12-065"	H	"	834.00
4A	1	C	17000	271-2	2500'	5	"	6/27 SEALE MODIFIED 1-9-9 1-032" 9-043" 9-083"	H	"	875.00
138	2	D	46710	605-A	1190'	7	"	6/25 FLATTENED STRAND 1-12-12 1-97 12-043" 12-0725"	H	0.45	507.00

LABORATORY TESTS

LINE No.	TEST MADE BY	ROPE LAY: LENGTH	ROPE LAY: DIRECT	STRAND LAY: LENGTH	STRAND LAY: DIRECT	CORES: MATERIAL	CORES: LAY	WIRES	TENSILE STRENGTH: MAXIMUM	TENSILE STRENGTH: MINIMUM	TENSILE STRENGTH: AVERAGE	AVER TWIST IN 100 DIAM	AVER BENDS
57													
								1 W	242,000	225,000	234,000	35	
	MFR	6"	RIGHT	3"	LEFT	MANILA	LEFT	0 W	236,000	215,000	226,500	33	
13	LOCAL	6 5/8	RIGHT	2 1/2	LEFT	MANILA	RIGHT	1 W	290,680	255,902	230,166	31	47
								1 OW	297,693	228,755	233,242	30	8
	MFR	6 1/4	"	2 1/8	"	"	"	0 W	253,882	240,159	245,555	31	53
1	LOCAL	6 3/4	RIGHT	2 1/4	LEFT	WIRE	RIGHT	1 W	287,729	234,821	282,664	37	63
								1 OW	246,693	234,196	248,089	32	10
	MFR	5 7/8	"	2 1/8	"	"	"	OW	234,271	244,376	248,258	36	3
6A	NO LABORATORY DATA AVAILABLE												
28	LOCAL	6 1/2	RIGHT	2 1/8	LEFT	MANILA	RIGHT	1 W	256,882	203,140	222,137	31	56
								1 OW	235,776	211,327	222,938	32	8
	MFR	6 3/8	"	2 1/8	"	"	"	W&OW	232,000	221,000	228,000	27	45
4	LOCAL	7"	RIGHT	2 1/2	LEFT	MANILA	RIGHT	W&OW	249,974	227,434	241,456	30	17
42	LOCAL	5 7/8	RIGHT	2 1/2	LEFT	MANILA	LEFT	W&OW	268,501	243,604	250,759	32	27
								FILLERS	334,942	283,796	311,234	34	223
	MFR	6 3/4	"	2 1/8	"	"	"	OW	265,000	221,000	246,000	33	
48	LOCAL	5 3/4	RIGHT	2 1/2	LEFT	MANILA	LEFT	IW-OW	278,294	216,661	240,732	32	20
	MFR	5 3/4	"	2 1/8	"	"	"	IW-OW	276,000	246,000	261,000	31	
44	LOCAL	6 1/4	RIGHT	2 3/8	LEFT	MANILA	LEFT	1 W	273,478	248,498	261,296	33	66
								1 OW	286,972	258,255	272,453	29	7
	MFR	6"	"	3"	"	"	"	OW	267,000	253,000	261,000	37	
61	LOCAL	7 5/8	RIGHT	2 1/2	LEFT	MANILA	LEFT	IW&OW	265,814	242,412	255,022	31	10
								FILRS	322,139	282,338	300,413	32	87
	MFR	6 3/4	"	3"	"	"	"	W&OW	260,000	235,000	246,500	30	
19	LOCAL	6 7/8	RIGHT	2 3/8	LEFT	MANILA	LEFT	1 W	279,012	249,016	263,880	34	11
								FILLERS	292,566	257,943	272,732	35	184
								OW	273,276	241,794	256,571	33	12
63	LOCAL	6 1/2	RIGHT	2 3/8	LEFT	MANILA	RIGHT	1 W	272,220	248,452	264,348	37	15
								O.W.	283,527	260,728	266,400	36	14
20A	NO LABORATORY DATA AVAILABLE												
21	LOCAL	6 1/2	RIGHT	3"	LEFT	MANILA	LEFT	W&OW	289,290	253,144	270,681	37	22
								W&OW	271,000	232,000	261,000	36	
	MFR	6"	"	3 1/8	"	"	"	FILLERS	241,000	209,000	224,000	36	
4A	NO LABORATORY DATA AVAILABLE												
138	NO LABORATORY DATA AVAILABLE												

FIELD SERVICE

WELL NAME	DATE INSTALLED	INDIVIDUAL SECTION: DEPTH DRILLED FROM	DEPTH DRILLED TO	LENGTH CUT	ROUND TRIPS	SIZE PIPE	NO OF LINERS	DIA DRUM	SERVICE DATA: CROWN BLOCK TYPE	CROWN BLOCK DIA SHEAV	TRAVEL BLOCK TYPE	TRAVEL BLOCK DIA SHEAV	TON MILES	COST PER TON MILE	TOTAL TON MILES	SERVICE COST PER TON MILE	REMARKS
Cr 10	6-15-27	4173'	4889'		24	5"		20"	A	24"	H(RB)	36"			1243	0.2660	
C0 1	5-29-27	3514'	4056'		34	5"		16"	F(RB)	30"	J(RB)	32"			3502	0.1778	LOWEST COST
E 18	6-19-27	3230'	4530'	1000'	56	6 5/8"	8	14"	A	24"	J(RB)	32"			2315	0.2700	
T 17	3-17-27	3640'	4485'	450'	35	5"		14"	A	24"	H(RB)	36"	1826				
E 10	5-30-27	3085	4485'		29	4"		14"	A	24"	H(RB)	36"	1032		2558	0.2450	
E 14	7-5-27	5435'	6765'	1100'	34	4"		14"	A	24"	H(RB)	36"	2214				
G 24	9-27-27	0	2636'		64	6 5/8"		16"	A	24"	"	36"	454		2668	0.2342	
T 19	4-4-27	96'	4245'	500'	115	6 5/8"		16"	A	24 & 30"	H(RB)	36"			2688	0.2395	
											J(RB)	32"					
T 21	6-22-27	4339'	5240'	1000'	46	5"		16"		24"	H(RB)	36"	2709				
E 18	7-11-27	88	2300'			6 5/8"		14"	A	24"	J(RB)	32"	593		3302	0.2030	
Cr 8	4-24-27	2827'	3555'		50	5"		18"	A	24"	H(RB)	36"			1432	0.2805	
Cr 10	5-15-27	3506'	4178'		52	5"		20"	A	24"	H(RB)	36"			1247	0.3230	
Pu 2	7-20-27	5256'	5414'		44	5"	8	18"	A	24"	H(RB)	36"			2008	0.2282	
E 15	6-18-27	4479'	5357'	900'	67	4"		16"	A	24"	H(RB)	36"	3661				
T 22	8-21-27	73'	2673'		73	6 5/8"		20"	A	24"	-	36"	590		3951	0.2205	
Cr 11	9-16-27	2825'	3459'		33	5"		16"	A	24"	H(RB)	36"			923	0.4745	HIGHEST COST
E 11	2-26-27	5923'	4300'	800'	83	5 5/8"		14"	A	24"	J(RB)	32"			2498	0.3500	W. Rope Lay (Apparently too stiff)
F 5	5-20-27	4423'	5210'		54	4"	8	18"	A	24"	H(RB)	36"	2436				6 Rope Lay
O 10	6-10-27	3580'	4720'		28	3"	6	18"	A	24"	H(RB)	36"	843		5281	0.2665	(Compare with Line above)
E 6	12-8-26	3638'	4959'	1000'	104	4 5"		14"	A	24"	-	36"			3720	0.2335	
A 13	9-6-27	3520'	3635'		3	3"		18"	A	24"	H(RB)	36"	430				
A 24	10-9-27	935'	955		2	6"		18"	J(RB)	48"	J(RB)	32"	56				
-	10-24-27		2302'		52	6"		18"	J(RB)	48"			1171		1637	0.3161	

FIGURE 6 SERVICE COMPARISON

H. H. ANDERSON

in terms of cents per ton-mile as follows:

$$\text{Cost per Ton-mile of Service Rendered} = \frac{\text{Ton-Miles Service}}{\text{Cost of Line}} = \frac{3125}{\$625.00} = 0.20$$

or 20 cents per ton-mile. Thus a method is developed to compare the practical values of various wire rope casing lines on the basis of the cost of the service rendered.

Complete service data which should be taken during the run of the line in the field are as follows:

Well at which line is installed.
Date line is installed.
Depths drilled, from —— to ——.
Total number of round trips of drill pipe.
Size of drill pipe hoisted and lowered.
Number of lines strung in blocks.
Diameter of draw-works drum.
Type of crown block and sheave diameters.
Type of traveling block and sheave diameters.
Ton-miles of service rendered.
Cost per ton-mile of service rendered.

In drilling deep wells it is often considered economy to purchase long lines, say 2500 feet in length. These are spooled on the draw-works hoist so that about one layer and four wraps are on the drum when the blocks are at lowest position, the blocks are strung up, and the balance of the line is kept spooled in reserve on the calf-wheel. (This latter serves to store the extra line conveniently and to give an emergency means of hoisting in case the rotary drilling engine should fail.) After the section of the line nearest the drum becomes crushed and wickered (usually from 300 to 800 feet), it is cut off and removed, and an equal amount is spooled off of the calf-wheel hoist, through the blocks and onto the drum. It is advisable to so arrange the service records that data on each section of long lines can be segregated. The same suggestion applies when one line is used at two or more wells.

Typical Service Records Compared

In order that other operating companies may judge for themselves the merit of the method described in this paper, and use it to their own advantage if they see fit, it is deemed advisable to disclose certain typical records already obtained by its use. Information as regards identification and actual net costs per foot must ethically be withheld as confidential. The identifications of manufacturers and trade names will be withheld by the use of a code, and the net prices will be withheld by pricing all plow steel lines at $0.25 per foot and all improved plow steel lines at $0.35 per foot. Makes of crown and traveling blocks will be withheld, except that same are marked (RB) in the Figures when they are of the roller-bearing type. All other data given are those actually obtained from manufacturers, local laboratories, and field records. The total ton-miles are those actually calculated for the individual lines, though the total costs per ton-mile are necessarily altered to be consistent with minor changes made to withhold the net prices per foot of the competitive brands. The records are shown in three figures—5, 6 and 7—each selected from the lot of about 150 on hand to illustrate three different points.

Figure 5 shows the records, selected at random, of six each of four types (brands) of lines. These are so presented to show the generally consistent results which the method gives. For example, the first group of six C-2 plow lines were run in four different districts 500 miles apart, some on steam driven rigs and some on an electric Hild-drive rig, with various depths of hole, sizes of drill pipe, numbers of lines in blocks, and diameters of drums and sheaves. One line was only about half the lengths of the other five, and yet the total range of cost per ton-mile of the six lines was only about 15 per cent above or below the average. Lines 8, 13 and 72 were run consecutively on the same well, and the consistent increase in service cost with increasing depth of hole might lead to the conclusion this was a parallel to be expected normally. These lines were of regular Seale construction.

The third group of six F-3 improved plow lines were run in three different districts, two lines were 1325 and 1500 feet in length while the other four were 2500 feet long. They were run under various conditions of depth of hole, size of pipe, diameters of drum and sheaves, etc., and yet the costs per ton-mile ranged only between $0.2175 and $0.2495 for the six lines. Almost equally as consistent results appear in the fourth group of six J-4 improved plow lines where the costs per ton-mile ranged from $0.2140 to $0.2675. Both groups of lines were of Seale construction, modified with filler wires.

The only apparently inconsistent results are to be found in the case of the second group of six E-1 plow lines, i. e., the low service costs of lines 59 and 60 and the high cost of line 53. In this group the cheapest service was obtained where the lines were run on large-diameter drums. In the case of the inconsistent high service cost of line 53, there is the possibility that the driller removed the line before it was worn out, perhaps to put on a new line to run a heavy string of casing. These lines were of regular Warrington construction, which same does not appear to be as satisfactory as the regular Seale for this service.

By averaging the costs of each group or brand of lines, fairly accurate comparative service costs may be obtained, and the operator can draw his own conclusions as to which lines will give him the most service per dollar invested. Figure 6 gives typical records of seven brands of plow lines and nine brands of improved plow lines. Each record was a test of a particular individual line, but in each case the individual line was chosen which had a cost per ton-mile very nearly equal to the average cost for all lines of that brand. With these averages, ranging from $0.1778 to $0.4745, available for study, the manager now has at least a good approximate answer to his question—"How much service did this brand of wire rope give per dollar invested?"

Figure 7 is presented to show how the "other influencing factors" may be evaluated approximately after some reasonably consistent basis of comparison is established. The particular factor considered is the effect of crown block design. The majority of the 150 lines purchased were run on old-style crown blocks, with 24-inch sheaves. Several lines recently have been run on a new type of crown block with 48-inch sheaves. Figure 7 shows the service records of the average lines of four types (brands) run normally on 24-inch sheave crown blocks, each in turn compared with the service record of the average line of similar type (brand) run on the 48-inch sheave crown blocks. The average of the costs per ton-mile of service for all lines run on the 48-inch sheave crown blocks was 40.7 per cent less than the average of the service costs for all similar lines run on the old-style 24-inch sheave crown blocks. If for the sake of conservatism this apparent increase was assumed to be only 20 per cent, an operator who now purchases $100,000 worth of wire lines per year can effect an annual saving of $20,000 by changing over his crown block sheaves to the larger size with an initial expense probably not to exceed from $7000 to $10,000, if reasonable salvage is credited for the old blocks. Inasmuch as crown blocks have a long service life the entire annual saving should be effective for several years following. It has long been conceded as reasonable that the use of larger sheaves should increase the service to be expected from oil country wire rope but, as a rule in the past, neither this important increase nor the particular effect of any other minor equipment change could be demonstrated to the manager with information expressed in terms sufficiently concrete to definitely substantiate a request by the drilling department for the capital expenditure necessary to make general installations of the improved equipment in all rigs.

All of the necessary data on the wire rope service of an operator who now spends 100,000 for wire ropes each year can be collected and correlated by a competent field man with an expenditure of $1000 worth of his time. The opportunities for substantial savings in wire rope service costs by improved methods of wire rope selection far outweigh the almost negligible costs of the effort.

TYPICAL RECORDS ONE INCH WIRE ROPE CASING LINES

SERVICE OF FOUR TYPES ON SMALL AND NEW LARGE SHEAVE CROWN BLOCKS COMPARED

IDENTIFICATION — LABORATORY TESTS — FIELD SERVICE

LINE NO.	DISTRICT	MANUFACTURER	ORDER	REEL NO.	LENGTH	TYPE OF ROPE: TRADE NAME	MATERIAL	CONSTRUCTION	API GRADE	COST PER FOOT	TOTAL COST	TEST MADE BY	ROPE LAY: LENGTH	DIRECT.	STRAND LAY: LENGTH	DIRECT.	CORE: MATERIAL	LAY	WIRES	TENSILE STRENGTH: MAXIMUM	MINIMUM	AVERAGE	AVER. TWIST IN 100 DIA.	AVER BENDS	WELL NAME	DATE INSTALLED	INDIVIDUAL SECTION: DEPTH DRILLED FROM	TO	LENGTH CUT	TOWN TRIPS	SIZE OF PIPE	NO OF LINES	STAM OF DRUM	SERVICE DATA: CROWN TYPE	CROWN DIA. SHEAV	TRAVEL BLOCK: TYPE	TRAVEL BLOCK: DIA. SHEAV	TON MILES	CONT. PER TON MI.	TOTAL TON MILES	SERVICE COST PER TON MILE	REMARKS
37	E	E	32485	120	1888'	1	Plow	5/8 WARRINGTON 1-071" 6-070" 6-071" 6-084"	J	0.25	472.00							11W	242,000	225,000	234,000	36		Cr 10	6-15-27	4175'	4889'		26	8"		20"	A	24"	H(RB)	36"			1243	0.2660	
												MFR	6"	RIGHT	5"	LEFT	MANILA	LEFT	OR	234,000	215,000	226,500	33																				
124	E	"	41695	1872-A	"	"	"	"	"	"	"							LW	232,000	218,000	218,000	39		Cr 9	8-13-27	4672'	4998'		23	5"		16"	J(RB) -DD-	48"	J(RB)	32"			2352	0.1431	BAD FISHING JOB
												MFR	5¾"	RIGHT	2⅝"	LEFT	MANILA	LEFT	OR	242,000	218,000	227,000	34			1053'	2802'		54	5"										
18	B	C	34427	120-A	2500'	E	Plow	5/8 SEALE, REGULAR 1-3-9	J	0.25	625.00	LOCAL	6¼	RIGHT	2⅝	LEFT	MANILA	RIGHT	LW	290680	255,902	270,186	51	47	Co 1	5-25-27	3514'	4050'		34	5"		16"	F(RB)	30"	J(RB)	32"			3508	0.1784	ON MILD DRIVE
								1-102" 3-043" 9-088"											OW	297693	2182.55	255,245	30	8																		
												MFR	6¼"	"	2⅝"	"	"	"	OR	253,882	240,155	245,855	51	55																		
9	1	"	29252	161-2	"	"	"	"	"	"	"	LOCAL	6½"	"	3"	"	"	"	LW	275,628	228,867	252,580	23	57	T 19	6-11-27	4225'	6360'		34	4"		18"	J(RB) -DD-	48"	J(RB)	32"			5197	0.1204	
																			OW	234,648	214,362	225,340	21	4																		
												MFR	6¼"	"	2⅝"	"	"	"	OR	237,330	233,478	235,720	35	55																		
28	1	G	20378	804-B	2500'	E	Plow	5/8 SEALE, REGULAR 1-3-9 1-035" 3-041" 9-092"	J	0.25	625.00	LOCAL	6½"	RIGHT	2⅝"	LEFT	MANILA	LEFT	LW	236,882	203,140	222,193	52	56	K 4	7-5-27	5495'	6765'	1100'	36	4"		14"	A	24"	H(RB)	36"	2214		7668	0.2342	
																			OW	236,774	211,527	222,193	52	56	O 24	8-27-27	0'	2636		64	8+8					H(RB)	36"	454			
												MFR							OW/OR			228,000																				
120	2	"	49550	820-A	1925'	"	"	"	"	"	551.75	NO LABORATORY DATA AVAILABLE													Cr 9	10-6-27	3066'	5700'		36	5"		16"	J(RB) -DD-	48"	J(RB)	32"			2349	0.1121	
48	2	J	24457	1616	1150'	1	Imp. Plow	5/8 WARRINGTON 1-071" 6-070" 6-074" 6-086"	H	0.35	402.50	LOCAL	5¾"	RIGHT	2½"	LEFT	MANILA	LEFT	LW/OW	218,294	216,021	217,258	52	70	Cr 8	4-24-27	2827'	3553'		30	5"		18"	A	24"	H(RB)	36"			1432	0.2805	
												MFR	5¾"	"	2⅝"	"	"	"	LW/OW	219,000	214,000	217,000	51																		
50	2	"	"	1620	"	"	"	"	"	"	"	LOCAL	5¾"	"	2⅝"	"	"	"	LW/OW	281,000	251,000	267,000	51		Cr 9	4-15-27	0'	861'		26	8"		16"	J(RB) -DD-	48"	J(RB)	32"			2122	0.1900	FISHING JOB
												MFR	5¾"	"	2½"	"	"	"	LW/OW	281,000	251,000	267,000	51			861'	2817'		35	6"										
																										2817'	3618'		61	5"										

SERVICE COMPARISON

SUMMARY OF ABOVE

CASING LINE IDENTIFICATIONS	COSTS PER TON MILE OF SERVICE RENDERED – 24' PLAIN BLOCK	48' SPECIAL BLOCK
E-1 Plow	.2660	.1431
C-2 Plow	.1784	.1202
G-2 Imp. Plow	.2343	.1121
J-1 Imp. Plow	.2805	.1900
Totals	.9592	.5654
Averages	.2398	.1413

$\frac{.2398 - .1413}{.2398}$ = 40.7 % Decrease in Wire Rope Service Costs effected by use of large Crown Block Sheaves

FIGURE 7.

A. P. I. Belt Specifications and Results of Use

Specifications have provided belts better suited for particular needs and code for care has increased term of usefulness

By F. O. PRIOR*
Midwest Refining Company

WHEN the Belting Committee took up its work in 1923, belts were being applied that were not fitted for oil field work, in their physical dimensions, strength, elongation or elastic qualities.

Those of us who at this time were interested in belting practice knew that there was marked lack of uniformity in the tensile strength and elongation characteristics of our belts. This was shown by the erratic service obtained from the same make and grade of belt on the same well. Very little thought was being given to placing the proper belt on the well for the service required. To illustrate this point, in 1923 it was found that many 10-inch, six-ply belts were being used and that the standard for drilling and pumping, regardless of the service, was 12-inch, six-ply and 12-inch five-ply belts respectively.

The manufacturers were just beginning to take an interest in this class of business but were rather at a loss to make improvements as in most cases the oil operators using the belt could not tell them what was needed or what service was being obtained from different types and classes of belting. This resulted in cut and try methods for the improvement of the following inherent weaknesses in oil field belting:

1. Variable elongation characteristics.
2. Very uncertain strength.
3. Inferior impregnating compounds.
4. Overloading the belt structure with impregnating compounds.
5. Belting not manufactured to oil field requirements.
6. Excessive use of trade names.
7. No method of checking quality by either the manufacturer or user.
8. No method of checking service by either the manufacturer or user.

The 1923 meeting brought out many of these points and a committee was appointed to determine a method for arriving at a specification and to collect data to define this specification.

Specifications

The first thought of the committee was to obtain a more uniform product from the belt manufacturers and to stimulate their efforts to produce better belting for the oil field trade. The first step was to examine belting specifications being used by the government agencies, belting manufacturers trade associations and large purchasers. After several meetings and much discussion it was decided that no available type of belt specifications were suitable for the oil industry and that whatever form these specifications took they should be simple and to the point. With these meager ideas an engineering sub-committee was appointed, and was instructed to collect samples of belting and to make tests upon these samples to see if some characteristics could be used for the basis of these specifications.

IN presenting the following paper, the author wished it emphasized that due to the short time given to collect data, and also to the short time that A. P. I. Belt Specifications have been in use by oil companies, it was very difficult to prepare an interesting or instructive paper on belting specifications and results obtained from their application.

It was explained that materials to be worked with on this subject are of a non-homogeneous nature and are not subject to well defined physical and chemical tests, as is the case with many other materials used in the oil country.

The sub-committee immediately collected 117 samples, took them to a testing laboratory in Chicago and conducted a series of tensile strength and initial elongation tests. These tests were analyzed and compared with data obtained from certain field tests and from this foundation the present specifications have been built.

The following show the great irregularities in tension and elonagtion characteristics of belting at this time and also illustrate by the heavy lines how this committee narrowed down the selection in endeavor to obtain some uniformity in the belting being purchased for the oil industry.

In making the original tests it was found that the tension and elongation curves varied greatly with the type of jaws used and the human element involved in making the readings.

To check the work already done a new series of tests was made on the same makes and classes of belting in a different laboratory. It was very gratifying to the committee to know that these later tests were practically the same and that no changes were necessary in the specifications.

All this time the A. P. I. Belting Committee was working with a manufacturers' committee as well as a special committee appointed by the Rubber Association of America. At this point in behalf of the Belting Committee I would like to offer appreciation for the splendid work and support offered by the individual manufacturers and their representative committees.

Recently the Rubber Association conducted similar tests on rubber belting in order to check the results of the A. P. I. engineering sub-committee. Our committee had plotted the loads on a basis of pounds per inch of width but the Rubber Association tests showed that more uniform results for different ply belting could be obtained if our curves were plotted on a loading basis of pounds per inch per ply. This was adopted for rubber belting and has been the only change in the specification form since the original curves were drawn.

Belt Clamps

Everyone that is interested in belt practice in the oil field knows that much of the belting trouble comes at the joint or splice. The belting committee soon took note of this fact and finding that approximately 50 per cent of the belting trouble came from this source, decided that work should be done on belt fasteners. A series of laboratory tests were made and field tests are now going on in order to determine the best type of fastener for joining belt ends.

The results of this work have been very important. Already the standard types of belt clamps on the market have been improved, better type of clamps designed and new forms of splices are being developed and tested which promises to increase belt life and may even change our ideas on splicing belts for drilling and pumping duty. Some idea of the scope of the work can be obtained from the following illustrations:

Jaws For Tension Testing Machines

Members of the engineering sub-committee soon found that to obtain uniform tests a specification and a code of use would have to be provided for tension testing machine jaws. This specification and code should be approved at this meeting and soon be available for testing laboratories. No doubt more uniform tests will result and the few erratic results of the manufacturers and operators tests which have been bothering the engineering sub-committee will disappear.

There is not sufficient time allotted to go into the details of this important work. All those interested, however, would be

*Paper read before A. P. I. Standardization Committee meeting, Chicago, December 7, 1927.

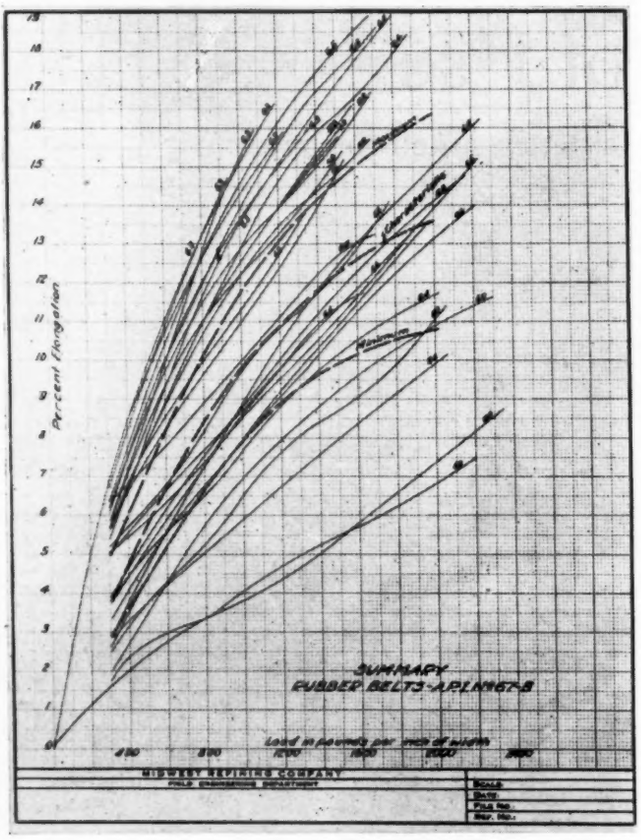


FIGURE 1

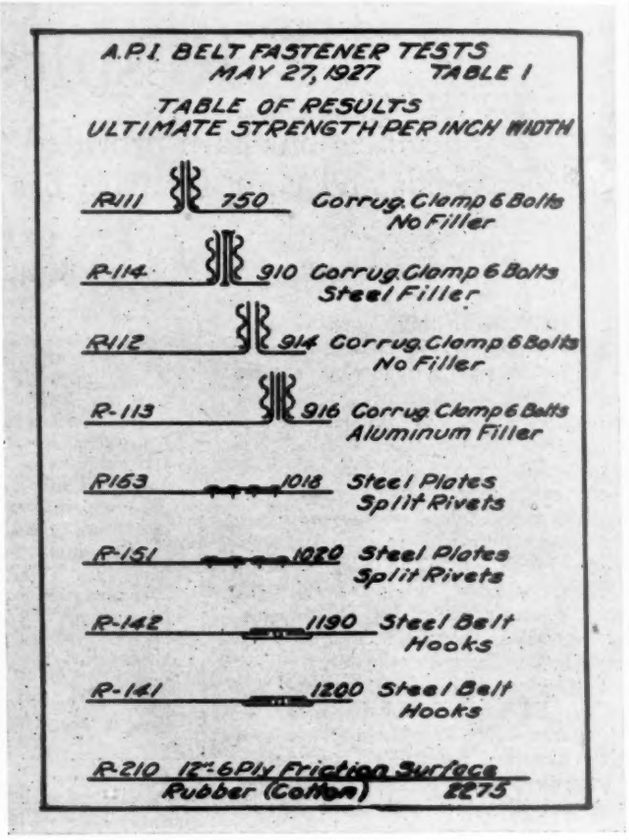

A.P.I. BELT FASTENER TESTS
MAY 27, 1927 TABLE 1
TABLE OF RESULTS
ULTIMATE STRENGTH PER INCH WIDTH
R-111 750 Corrug. Clamp 6 Bolts No Filler
R-114 910 Corrug. Clamp 6 Bolts Steel Filler
R-112 914 Corrug. Clamp 6 Bolts No Filler
R-113 916 Corrug. Clamp 6 Bolts Aluminum Filler
R-153 1018 Steel Plates Split Rivets
R-151 1020 Steel Plates Split Rivets
R-142 1190 Steel Belt Hooks
R-141 1200 Steel Belt Hooks
R-210 12"-6 Ply Friction Surface Rubber (Cotton) 1275

FIGURE 2

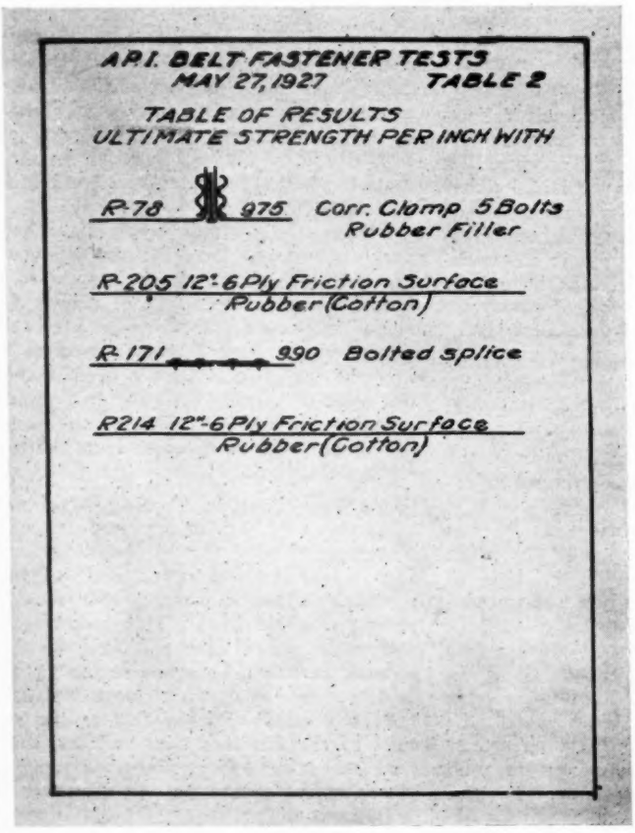

A.P.I. BELT FASTENER TESTS
MAY 27, 1927 TABLE 2
TABLE OF RESULTS
ULTIMATE STRENGTH PER INCH WITH
R-78 975 Corr. Clamp 5 Bolts Rubber Filler
R-205 12"-6 Ply Friction Surface Rubber (Cotton)
R-171 990 Bolted Splice
R214 12"-6 Ply Friction Surface Rubber (Cotton)

FIGURE 3

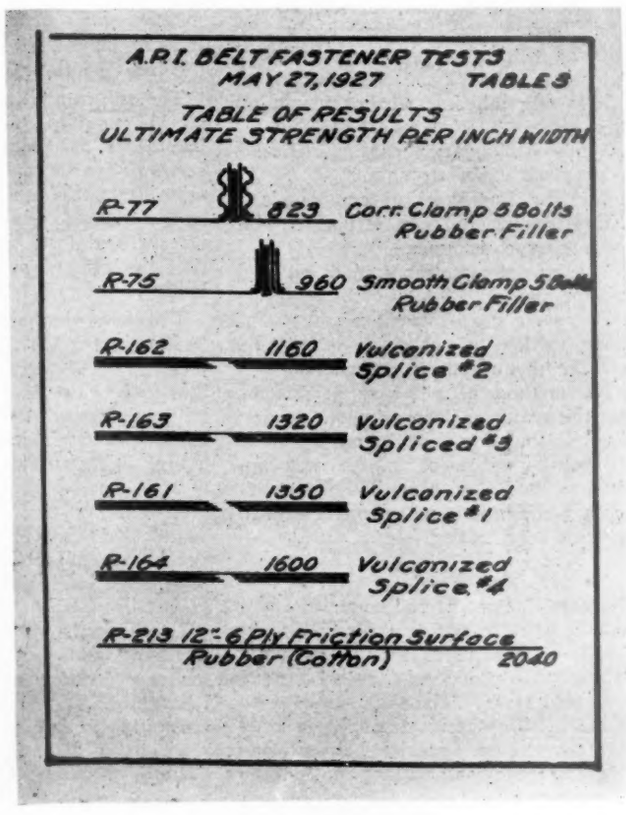

A.P.I. BELT FASTENER TESTS
MAY 27, 1927 TABLE 3
TABLE OF RESULTS
ULTIMATE STRENGTH PER INCH WIDTH
R-77 823 Corr. Clamp 5 Bolts Rubber Filler
R-75 960 Smooth Clamp 5 Bolts Rubber Filler
R-162 1160 Vulconized Splice #2
R-163 1320 Vulconized Spliced #3
R-161 1350 Vulconized Splice #1
R-164 1600 Vulconized Splice #4
R-213 12"-6 Ply Friction Surface Rubber (Cotton) 2040

FIGURE 4

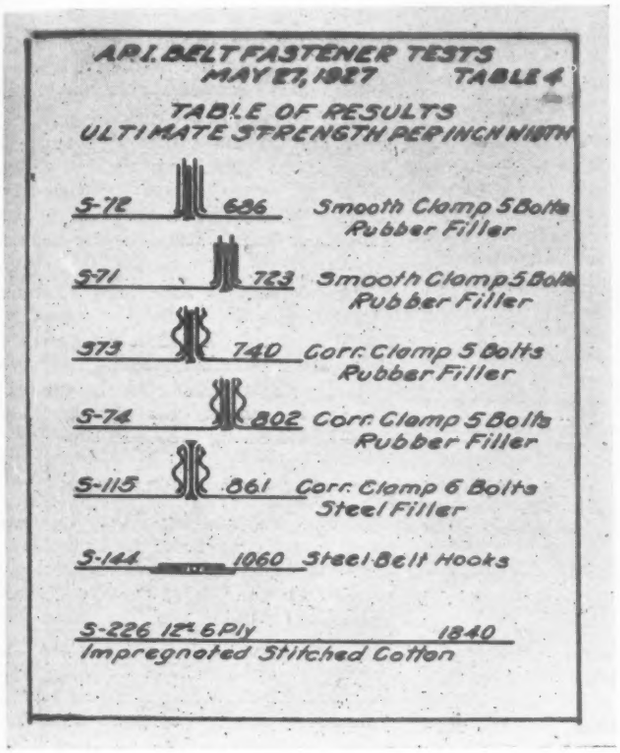

A.P.I. BELT FASTENER TESTS
MAY 27, 1927 TABLE 4
TABLE OF RESULTS
ULTIMATE STRENGTH PER INCH WIDTH
S-72 626 Smooth Clamp 5 Bolts Rubber Filler
S-71 723 Smooth Clamp 5 Bolts Rubber Filler
373 740 Corr. Clamp 5 Bolts Rubber Filler
S-74 802 Corr. Clamp 5 Bolts Rubber Filler
S-115 861 Corr. Clamp 6 Bolts Steel Filler
S-144 1060 Steel Belt Hooks
S-226 12" 6 Ply 1840
Impregnated Stitched Cotton

FIGURE 5

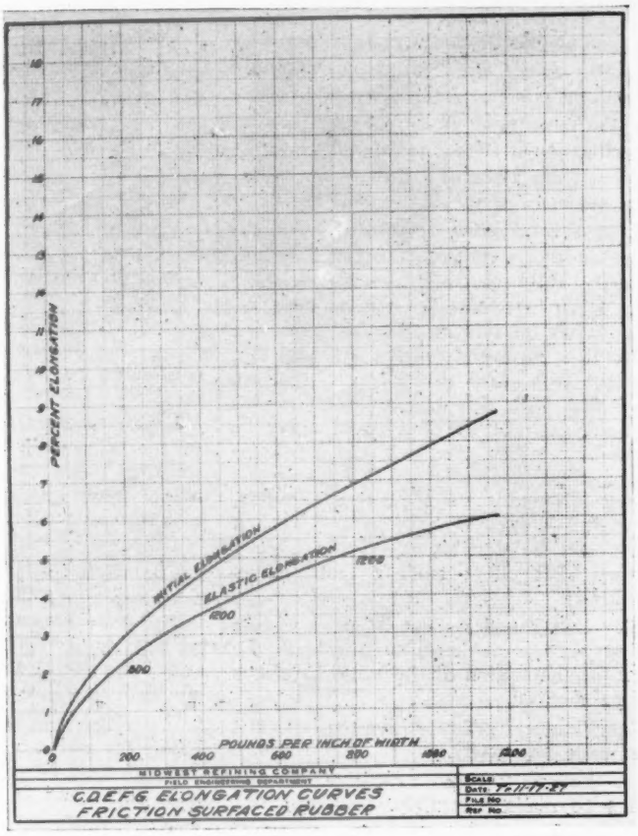


FIGURE 6

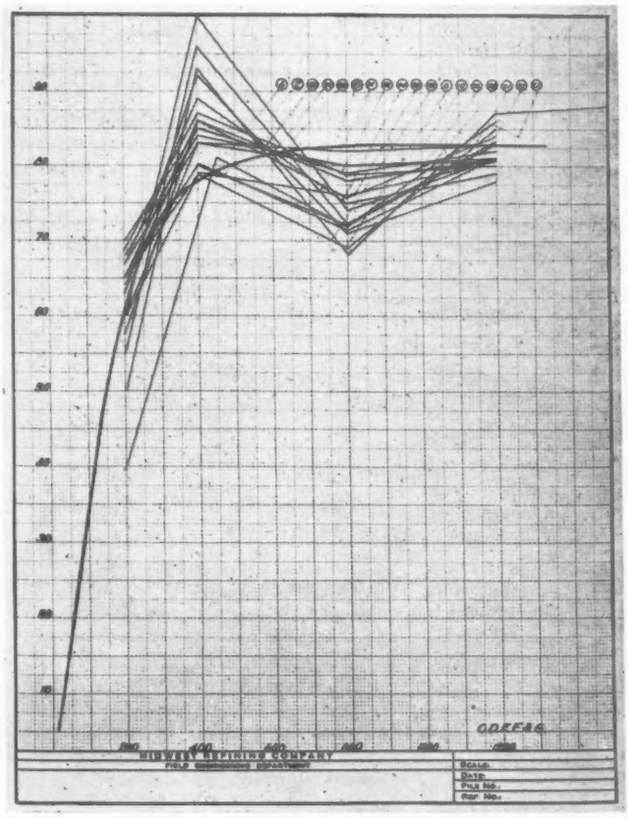


FIGURE 7

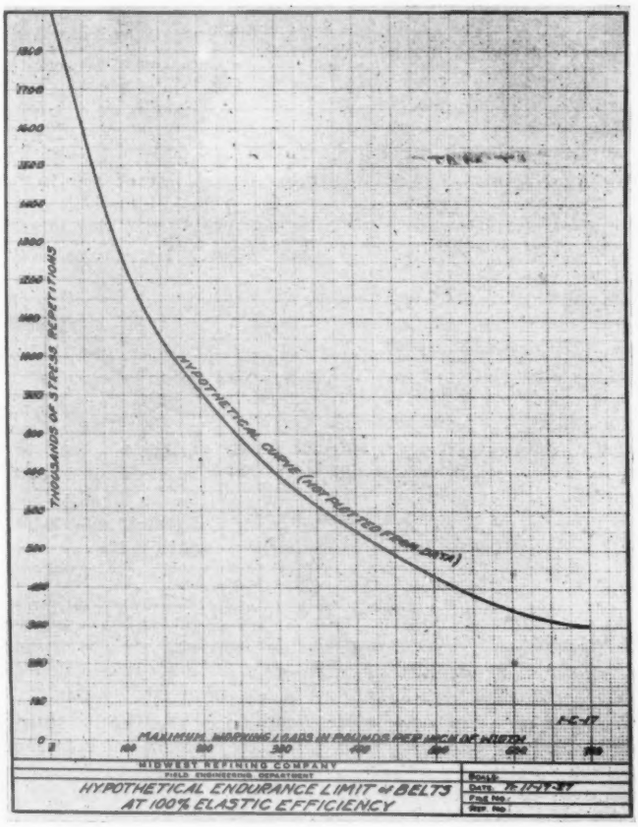

THOUSANDS OF STRESS REPETITIONS
HYPOTHETICAL CURVE (CHIEFLY PLOTTED FROM DATA)
MAXIMUM WORKING LOADS IN POUNDS PER INCH OF WIDTH
MIDWEST REFINING COMPANY
FIELD ENGINEERING DEPARTMENT
HYPOTHETICAL ENDURANCE LIMIT of BELTS
AT 100% ELASTIC EFFICIENCY

FIGURE 8

well repaid by obtaining and studying the A. P. I. Bulletins on Belt Fasteners.

Fatigue or Endurance Tests

Early in the work it was realized that a fatigue or endurance tests would be one of the most important things in the belt specification if such a test could be worked out from a practical standpoint. Various members of the engineering sub-committee spent a great deal of time and effort on the development of such a test. Finally, this year, one type of machine was constructed and some belts were actually run on this machine to determine their life. In every case it was found that fatigue took place at the splice or clamp and that with this type of machine the fatigue limit of the belt could never be found. Various members of the engineering sub-committee are still giving this very important matter some thought, and it is hoped that some day such a test can be developed. Some of the items that effect such a test are as follows:

1. Belt samples must be used with a cross section at least one-third of the area of the section of the belt where it is to be clamped.
2. Fatigue from repetitive tension must be made separately.
3. Fatigue from repetitive flexing must be made separately.
4. Fatigue from slippage must be made separately.

These requirements make the problem a very difficult one and it will no doubt take the best thoughts of the engineering committee and the belting manufacturers as well as a considerable length of time to work out any such satisfactory test.

Belt Records

Regardless of research work, laboratory tests and specifications, the A. P. I. Belting Committee, and especially the engineering sub-committee, must be guided by the results obtained from belts in actual service. Service data that can be relied upon can only be obtained from oil companies who take an interest in the proper inspection, care and use of belting, and most especially proper records.

Many companies are now using records but in nearly every case these differ from each other. To get comparable data for the use of the engineering sub-committee an A. P. I. belt record form has been adopted. This record is very complete and practical as it has been used successfully by one large company for some time. We urge that all companies adopt this form of record so that the proper data will be available to the A. P. I. committee for its future work.

Elastic Properties of Belting

From the first meeting of the Belting Committee until the present suecifications are adopted a year ago this December, the question of elasticity of belting was often discussed. At an early stage of this work it was recognized that the subject of elasticity in belting was such a broad and new one that to consider it would hinder the development of a simple specification which both the manufacturers and users felt was greatly needed as soon as possible.

At our last June meeting the present specifications, except hair and solid woven cotton belting, were approved by both the A. P. I. committee and the manufacturers and a six months trial was arranged for, giving the manufacturers a 10 per cent tolerance.

With this work definitely behind us, certain members of the committee felt that it was now time to take up this very important subject of elasticity; it was discussed by the main committee and referred to the engineering sub-committee for consideration. The sub-committee outlined several ideas and designated certain members to carry on this work. The results of these tests and the research work were considered by the engineering committee at the last June meeting and again at a special meeting called in Tulsa last August.

The work itself and the comments of the members of the engineering sub-committee were very interesting as they open an entirely new line of thought which we feel is so important that research work and field tests are still being planned and carried on.

The research work finished prior to our June meeting has been published in bulletin form and is now available. This very important and rather involved subject will be outlined briefly in this paper but it would be well for at least the engineering members of the Institute to familiarize themselves with this work.

Briefly, this work demonstrated that belting has a certain amount of initial and elastic elongation. It has been proven in the laboratory that after applying certain tensions the belt will be perfectly elastic with lesser tension loadings. Another interesting point is that elastic efficiency increases with loading up to a point of 400 to 800 pounds per inch of width and then slowly falls off. More work will undoubtedly have to be done before the point of maximum efficiency can be accurately determined. This characteristic will give us some very important information for properly installing belts on our pumping and drilling drives.

No work has yet been done on determining the elastic life of a belt at different loading of repetitive stress. This brings us back to the matter of fatigue or endurance tests in a slightly different form, but regardless of the form it brings again to our attention the importance of such a test.

We know that if we should plot loads against the number of stress repetitions that we will get a hyperbolic curve which will give us the number of stress repetitions that a belt can stand before failure at any loading.

While the form of the curve has been determined theoretically, the position of the curve can only be obtained by actual fatigue or endurance tests. If this work can be continued to a successful conclusion it will be very valuable to the operator. He can weigh his well and find the maximum load under actual operating conditions. Then he can find, by means of pumping speed or strokes per minute, the number of strain reversals. Having obtained these two quantities he can choose a belt, from the curve mentioned above, to give him the maximum possible service and can also get a very good idea of the prospective life of the belt. This, of course, will necessitate the weighing of wells and the proper application of belts.

Many companies are now weighing their wells and in the future this work will be extended greatly so that it will not throw any excessive labor or costs on the company using this method for applying the proper belt to its particular adaptable service.

Several methods have been determined for weighing wells using dynamometers and I think this should be the basis for a paper at some future meeting as it would certainly be interesting to the oil operators, and especially the engineers interested in increasing their belt life.

Code of Oil Field Practice

At our June meeting a very interesting paper was prepared and read on this subject. At this time many slides were given which I do not believe need to be shown again.

The main points of this paper have been incorporated in the A. P. I. Belting Specifications and should be carefully read and followed by any employe who is interested in increasing the lift of oil field belting.

Results Obtained

At this time we have had less than 12 months experience with A. P. I. belting in actual service. Very little, if any, of this belting has been installed and used according to the improved practice defined and recommended by the committee.

The following table shows the results from using A. P. I. belting by one of the Mid-Continent companies. These conditions reflect some of the severest pumping conditions encountered in the oil country:

TABLE I

	A. P.I. Belting	Old Style Belting
No. of wells	188	77
Av. depth-ft.	4000	4000
Bbls. per day per well—		
Oil	125	165
Water	125	25
Fluid	250	190
Hrs. pumped per day	24	24
Av. belt life-days	143	125

Assuming the average cost of a pumping belt to be $150, the saving in the belt costs per well per day is 15 cents. There are some 300,000 wells in this country today. Supposing this saving could be made on one-third of these wells, it would amount in a year to $5,475,000. It may be felt that the number in the above calculations is too great, but on the other hand there is no question but that in time greater savings will be made in the per well per day belt costs.

While the above increase in service is quite considerable, the conditions of the

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load handled during the months when A. P. I. belts were used were not favorable to supply belt records that any company should be proud to make public. A large majority of the wells were equipped with gas engines having reversing clutch pulleys so small in diameter and narrow in width that there were several cases of prematurely damaging belts. An unusual number of severe rain storms caused many of these belts to be exposed to leaky belt houses, causing slippage and frequent burning of the belts. Many of the belts were installed where it was impossible to use the best make of oil field belt clamps with any success owing to the high tension under which the belts operated.

In the Mid-Continent districts many A. P. I. belts are now being applied under much more favorable conditions, where pulley ratios and diameters are favorable for meeting proper belting requirements, but there has not been sufficient lapse of time to compile any records where this equipment is in operation.

One company in the Mid-Continent has been using A. P. I. belting practically all this year and reports that they have increased their belt life approximately 50 per cent since they have started buying belting to the A. P. I. standards or approximately to the standards, together with the initiation of the recommendations of A. P. I. for inspection, care and use of belting.

Both field service records and laboratory tests show that some belts already recommended, when properly applied, may have a wider range of usefulness than heretofore. In some cases belting previously considered unsuitable for oil field conditions has proven more suitable than the manufacturer anticipated. Nearly all types of belts have shown an improvement and some special classes have shown a marked improvement since the A. P. I. Specifications have been adopted by the manufacturers.

In a few cases where belts came up to the A. P. I. Specifications their service records were very disappointing, pointing to the short life of some of the material going into the belt. These few cases can only be found from experience as it is not within the province of the A. P. I. Standardization Committee to specify how belts are to be manufactured. In this respect belts will be called upon to more than merely meet the specified laboratory tests of the A. P. I., as in all cases the actual service record is now and always will be the last word in belt selection.

Summary of the Advantages

The work of the A. P. I. Belting Committee and its associated committees has made possible the following improvements in belts and belting practice:

1. The A. P. I. Specifications for oil field belting has brought the following results:

(a) Belts have a longer useful life.
(b) More uniform belts.
(c) Lower service cost per day.

2. A code for the care and use of oil field belting has brought about improvements in:

(a) The proper selection of belting.
(b) The hiring of belt inspectors.
(c) The weighing of wells.
(d) The use of comprehensive belt records.
(e) The use of proper pulley sizes wherever possible.
(f) The proper installation of belts.
(g) The proper use of belt dressing.
(h) The proper application and selection of belt clamps.
(i) The elimination of belt abuses.
(j) The proper warehousing of belts.

3. The establishment of an engineering committee to take care of research and laboratory work has made possible:

(a) The determining of the physical characteristics of ultimate strength and elongation.
(b) The strength of belt clamps against straight tension.
(c) A code of jaw specifications making towards more uniform tests.
(d) Providing standard testing machine jaws at central points near large oil producing districts.
(e) The elastic properties of belting.
(f) The work on the determination of the coefficient of friction between belts and cast iron pulleys.
(g) The work on the development of fatigue and endurance tests.

4. A better understanding of the oil field problems by the manufacturers brought about by:

(a) Belt inspection.
(b) Service records.
(c) Weighing of wells.
(d) A stimulation to build better belts.
(e) More research work.
(f) More testing of their products.

These are many of the more important developments brought about by the specifications and the work done by the A. P. I. Belting Committees.

It must be borne in mind that there is yet a great amount of technical work to be done on belt research as well as the actual methods of installation and care in the field. The committee feels that this work is important and that after a time the results of this work should go a long way toward further improving belting, its care and use, and ultimate service.

Due to the nature of the materials under consideration this program is necessarily slow; but we feel that with the engineers who are now working on this problem and with the co-operation of the manufacturers we can look forward to great improvements in belting and belt service in the next few years.

L. E. Lippold, 32, rig building contractor of Ponca City, Oklahoma, and well known throughout the state, was killed December 23 when an automobile in which he was riding on the Dallas-Sherman highway, near Prosper, Texas, was overturned and crashed.

Charles B. Johnson, representative of the Parkersburg Rig and Reel Company, Tulsa headquarters, returned last week from a business trip to Denver.

A. B. Hookins Elected Treasurer of Prairie

Independence, Kansas.—Directors of the Prairie Oil & Gas Company last week elected A. B. Hookins, formerly comptroller of the company, treasurer to succeed the late E. T. Patterson, who died November 27. Further action of the board of directors was to elect Horace Fitzpatrick as a member of the board. Horace Fitzpatrick, who is the son of W. S. Fitzpatrick, chairman of the board of the company, holds the position of assistant to Dana H. Kelsey, vice-president and general manager of the Prairie.

New Mexico Test

Tulsa.—The Texas Company's Robinson 2, a semi-wildcat test in the northwest corner of the southwest quarter of section 25-16s-31e, Eddy County, New Mexico, was shut in pending construction of steel storage December 22, following completion for 2,000,000 cubic feet of gas and an estimate of 200 barrels of oil from pay topped at 3985 feet and penetrated to 4010 feet.

Permit Muddle

Los Angeels. — The muddle into which the State permits for drilling beach lands has fallen remains as much a puzzle as it was a month ago, when agitation to prevent the permits in the Rincon field first started. Certain private interests are claiming that certain State officials are responsible for the doubtful status of the leases. It is claimed that the permits should not have been issued on a five per cent royalty basis, as it would now be possible to obtain a much higher royalty, plus fancy bonuses.

Payne County Extension

Tulsa. — Wood Oil Company's Y. Eagle 1, in the southeast of the southwest of section 33-19n-5e, Payne County, was shut down for tankage December 21 after filling 1400 feet with oil in three hours following the finding of an oil sand at 3600 feet and drilling into it eight feet. This test extends this Payne County production about one-half mile to the east.

Complete Line

Denver, Colo. — In a temperature which stood at 46 degrees below zero most of the time, the Midwest Refining Company's engineering department has practically completed the 14 miles of four-inch pipe line from the Iles Dome structure to the tank farm near Craig. All that remains to be done now is the installation of pumping machinery and erection of several tanks. It is expected that the line will be in operation about January 15.

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Rincon Discovery Well Stops Producing

Rush of work on drilling wells in new California area continues, but no new locations are being made

By BRAD MILLS
Staff Representative

LOS ANGELES.—Just as the oil fraternity in California settled down to observe the action of the Pan-American Oil Company's State 1, the discovery well in the new Rincon field, the producer suddenly ceased flowing and had to be revived with a compressor. The whole industry breathed a sigh of relief when the water shut-off was effected and the well started flowing at the rate of 750 barrels. The company had worked diligently for weeks in an effort to successfully complete the well; and its action a few days after its official completion leaves the status of the field in doubt. The well has not flowed regularly since it ceased action several days ago. When the compressor is applied and the producer starts functioning again, the flows last from two to 24 hours. The rate of production ranges from 480 to 700 barrels, and the cut varies from two to four per cent. The well is producing from only a few feet of sand, since several hundred feet of oil-bearing formation had to be eliminated because of streaks of water sands. The well in its present state is not performing satisfactorily.

Other operators in the Rincon field are taking little stock in the action of the discovery well. They are chiefly interested in completing producers of their own. Few new locations have been made during the past two weeks, and it now looks as if some of the beach permits will not be drilled. There is a concerted effort to "preserve the beauty of the beach," and it seems that few, if any, additional permits will be issued. The Pan-American has made phenomenal speed on its second well, Hobson Fee 3, and will soon drill out the cement below the 13⅜-inch casing, which is cemented at 2536 feet. Several other wells are nearing the oil sand and completions may be expected soon after the first of the year. Eighteen wells are now drilling in the field.

Long Beach Slow

The Long Beach field has just passed through by far the greatest lull it has experienced since the inception of the deepening and drilling campaign. No wells were completed, and production declined a full 3000 barrels. It was probably a lull before a storm, as about a dozen wells are nearing completion. To some, the decrease was a direct indication that the field was slipping; but as several wells were killed to deepen, and no completions were recorded, it was readily evident that the slump was only temporary. The General Petroleum Corporation attempted to complete Boyer-Kelly 6, but failed to secure a satisfactory shut-off. The well is located on proven property and its failure cannot be attributed to lack of sand saturation.

The completion of a 200-barrel well north of the McKittrick field by the Keefe & Morrison interests is considered important for more than one reason. The well is located on Section 8-30-22, and either proves the existence of a small, separate pool, or that there is an actual extension of the McKittrick pool toward the north. Some shallow oil had been developed near the new well, but it was not considered important. The Standard and other companies had drilled several wells in the flat between the Keefe & Morrison well and the main McKittrick field, but eventually abandoned all tests.

Mt. Poso

The Union Oil Company has opened up an important extension to the Mt. Poso field by the completion of Tribe 1, which is located about one-half mile south of the General Petroleum Corporation's Glide 1, which also extended the producing limits of the field more than a mile southward. The Union's well is located on Section 28-27-28, and was the most southerly wildcat in the Mt. Poso district. A complete test was not made, although the well produced 75 barrels of clean oil in eight hours. Total depth was 1780 feet.

The Pacific Eastern Production Company has encountered another broken oil sand in its Union Avenue wildcat, near Bakersfield, at 4855 feet, but streaks of gray sand prevent a test of its possibilities. The company is drilling ahead with the idea of finding a better defined formation.

The Round Mountain field still remains in the questionable class. Both the St. Helens Petroleum Company and the Associated Oil Company have at least temporarily shut down operations on their tests in different parts of the field, and it is thought that the former will not attempt to drill deeper. The Associated has made good time on its well, which is located on Section 34-28-29, but has found little of an encouraging nature at any depth. The hole was drilled to 2565 feet. The test is located more than three miles southeast of the Elbe Oil Company's discovery well and was expected to have an important bearing upon the possibility of a lengthy extension in that direction. The location was supposedly higher on the structure than the discovery well, but was taken deeper without results. The St. Helens test is located on Section 13-28-28, and a comparatively short distance from the original and only producer in the field. The company encountered very promising showings between 2345 and 2500 feet in a sand that corresponded to the formation in the discovery well. The well was drilled to 3695 feet before being shut down. Very few showings were found below 2500 feet. Before the well is abandoned outright, it is generally believed that the company will give the sand near the 2400-foot level a thorough test. The Shell Company, which is completing the second well started by the Elbe interests, has reached 3800 feet. The well is located on Section 20-28-29 and only a short distance from No. 1, which will produce consistently at more than 500 barrels per day. The well has had no showings of importance since passing 2400 feet.

Ventura

Only one well was completed in the Ventura field during the week. It was the Bolsa Chica Oil Company's Hartman 3, which flowed 800 barrels on the initial test. The well was far below the average, but no smaller than many completed on other choice leases. Total depth was 6625 feet. The gas pressure had become so high that drilling was stopped and the well allowed to come in through the drill pipe. The Associated Oil Company has found its Lloyd 102 is considerably higher on the structure than wells farther west. The top of the oil sand was found at a depth which indicates that the eastern end of the Lloyd lease is very favorably located on the structure. The Shell Company is drilling several wells in the field and is expected to complete at least two producers within a

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month. The company is already one of the largest producers in the field.

Huntington Beach

There seems to be little of an exciting nature in store for the Huntington Beach field. Production has steadily declined from 72,000 to 61,000 barrels over a period of several months, but is expected to offer more resistance during the next few months. Flush production is not expected to materially aid the situation, as the wells are coming in with a nominal yield. Many new wells are being drilled but they will not offset the natural decline, it is thought, unless small, prolific, undeveloped spots are tapped. The field will remain a major area for a long time to come, and production will not fall to 50,000 barrels for at least six months. The Califorina Petroleum Corporation's Fee 4 was the only completion of the week. The well was finished as a heavy oil producer at 2150 feet, with an initial production of only 100 barrels. The upper tar sand has been yielding wells almost as large as the lower formations, and 100-barrel pumpers around 2100 feet have been rather tempting. The cost of drilling past 4000 feet has hardly been justified in many instances. Efforts to extend the producing limits of the field have not been successful. One test in particular caused much excitement three months ago, but deeper drilling disclosed that the test was completely off structure.

Drilling operations in the Seal Beach field have dwindled until only seven wells are listed as active. A few wells are being deepened and reconditioned, but by far the greater number are idle. Abandonments are continuing at a dizzy rate. It is interesting to note that many of the idle wells are standing at a depth approximately midway between the upper and lower producing sands, indicating that the almost sudden failure of the latter caused a halt in operations. The chief interest has shifted from the townlot area to the main part of the field, where nearly all future development will take place. The conservatively drilled area is still producing almost as much as during the summer months, when the peak was reached. The only new production of the week resulted from the recompletion of Paul Getty's Cleaver 3, which came in with a new initial output of 225 barrels from 5465 feet. George F. Getty, independent operator, will drill a wildcat test just outside the townsite area, near the intersection of Ocean Avenue and Fourth Street. It will be much nearer the water front than previous tests.

The Magenheimer Securities Corporation has actively entered the Cat Canyon field, having started a well on Section 30-9-32. The well is a direct offset to the Palmer-Union Oil Company's Stendill 14 and is located on what may be termed proven land. Both the R. & G. Oil Company and the Palmer Union interests have wells near completion. The former has experienced considerable trouble since cementing the 10-inch casing at 2965 feet. After drilling out the cement, the casing collapsed and it was found necessary to re-drill for several hundred feet. The latter is drilling out the cement at 2860 feet, where the 10-inch casing was set. The Cat Canyon field produces a very heavy grade of oil which is in good demand.

Production in the Baldwin Hills-Inglewood field decreased slightly, although two completions and as many re-completions were added during the week. The re-conditioning program recently inaugurated by the Associated Oil Company was reflected in the recompletion of Baldwin Vickers 6 and 12. The former was deepened to 2800 feet and increased its production to 200 barrels, while the latter was only a 40-barrel well at 2550 feet. The company is re-drilling two other wells. The Standard Oil Company completed Baldwin-Cinega 55 and 63 with an initial production of 120 and 80 barrels, respectively. Both wells were finished at 2100 feet. Very little development will take place in the field during the early part of next year and no deep drilling is anticipated.

Activity in the Sunset and Midway fields is very limited. A few wells are being drilled here and there, but the hustle of olden days is conspicuously absent. Independent companies are drilling and developing a few edge tracts, while some of the old producers are being deepened and re-conditioned. The Standard Oil Company completed No. G-29, Section 29-31-24, as a 200-barrel producer at 4525 feet. The company is drilling only four other wells in the district. Very few wells are shut in and the production declines only a few barrels each week. The fields cover such an immense area that the exhaustion of the region will be a matter of decades.

The Union Oil Company has acquired additional holdings in the Brea-Olinda District through the purchase of leases formerly owned by the Olinda Land Company. The Union took over a large block of semi-proven acreage from the company more than a year ago. The latest purchase includes chiefly proven acreage, which is now yielding about 1200 barrels per day.

Prairie Oil and Gas Company Looking Over Production Situation in California

Los Angeles.—Entry of the Prairie Oil and Gas Company into California is forecast with the announcement by Dana H. Kelsey, vice-president of the Mid-Continent Company of the retention of C. R. McCollom of Los Angeles and W. H. Taylor of Cheyenne, Wyoming, to investigate the California oil situation. Mr. McCollom is a petroleum geologist who has been chief geologist with the Union Oil Company for seven years. Mr. Taylor is an attorney who has been associated with the Prairie Oil and Gas Company in its Rocky Mountain operations for the past 10 years.

Beyond stating that these gentlemen have been retained to investigate the California oil situation, the official statement does not indicate whether or not the Mid-Continent company intends to launch a drilling campaign or whether its plans call for entry into the producing as well as the marketing phase of the industry.

The official statement as released by Mr. Kelsey is as follows:

"Mr. Dana H. Kelsey, Vice-President of the Prairie Oil and Gas Company of Independence, Kansas, announces the completion of a contract between his company and C. R. McCollom of Los Angeles, and W. H. Taylor of Cheyenne, Wyoming, in which the two above named are retained by the Prairie Company to investigate the California oil situation.

"Mr. Taylor is an attorney at law who has been associated with the Prairie Oil and Gas Company in its Rocky Mountain operations for the past ten years. Mr. McCollom is a petroleum geologist who has been with the Union Oil Company of California, as chief geologist, for the past seven years, having resigned from that position effective January 1, to make this connection.

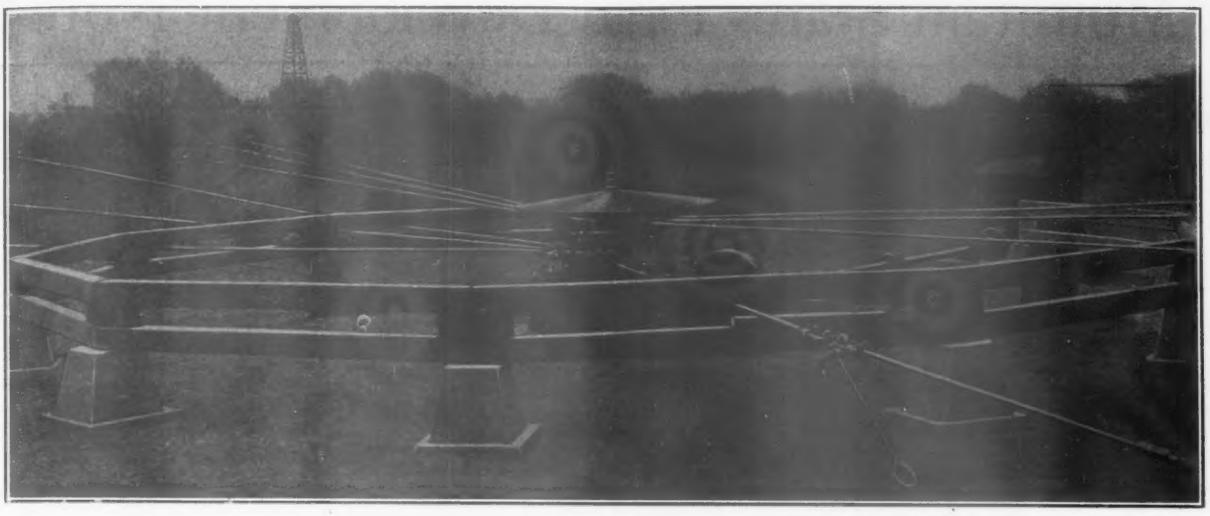
"Their offices will be opened January 1 at 452-453 Roosevelt Building, Los Angeles."

The Prairie Oil and Gas Company is a complete unit in the oil industry, producing, refining, transporting and marketing petroleum and products. Its authorized capital is 2,800,000 shares, par value $25.00, of which 2,406,292 are issued. It holds leases on about 500,000 acres in Oklahoma, Kansas, Texas, Colorado, New Mexico and Wyoming. Its estimated daily production is 25,000 to 30,000 barrels of crude. In addition, it purchases nearly all oil gathered by the Prairie Pipe Line Company from 4000 leases in Oklahoma, Kansas and Texas.

The Prairie Oil and Gas Company has tank farms with 60,000,000 barrel capacity. Through the Producers and Refiners Corporation which it controls, Prairie has a 12,000 barrel skimming and lubricating plant at Parco, Wyoming; 6000 barrel skimming and cracking plant at West Tulsa and 3000 barrel skimming plant at Blackwell, Oklahoma.

Marketing facilities of the Prairie and controlled companies comprise 150 bulk and 650 retail filling stations in 15 states.

Net profits for 1926 after depletion, depreciation and provision for federal taxes amounted to nearly $16,000,000, or equal to $6.63 a share.



The LUFKIN Worm Geared POWER

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Say you saw it in The OIL WEEKLY

Mountain States Field Development Notes

Cold Weather Halts Work In Montana Fields

Great Falls, Mont.—Continued cold weather with some snow has stopped nearly all work in the Kevin-Sunburst field. The roads are fairly good, but it has been so cold that water pipes could not be kept open, or water hauled. Operations will be resumed when weather moderates.

Because of the severe winter weather work on the Great Falls end of the natural gas pipe line being constructed between Great Falls and the Kevin-Sunburst field is progressing slowly. A camp has been established about eight miles north of the town and a crew of 50 men is at work on the job.

Officials of the Montana-Dakota Power Company, operating a 30-town string of electric franchises in the state and in Western North Dakota, announced last week that natural gas for Sidney, with other lower Yellowstone Valley towns, and Williston, N. D., will be an assured thing within the next two years. The company owns and controls the Cabin Creek gas fields in Fallon County and has gas pipe lines distributing natural gas fuel to Glendive, Terry and Miles City along with other cities in that section of the State.

The operations at the Healey Springs test, 12 miles south of the town of Conrad, are the only activities now under way at any of the locations in the Pondera area. This well has found it possible to continue drilling despite the severe weather conditions, but the Fulton well, a short distance away, has been forced to shut down. The Pendroy and Healey Springs wells are being put down by the Continental Development Company.

Ohio Oil Company is core drilling the Harlem structure in Blaine County, north central Montana and should the sub-surface geology prove favorable, company will drill a test on this structure in the summer.

A test of the bench west of the city of Lewistown will be drilled by citizens of the town and bids for drilling are now being asked. Drilling will not be started until spring.

Investigate Yield of Oil From Coal and Shale

Denver, Colo.—Experiments covering an investigation of the yields and properties of crude oils produced from oil shale, lignite, and sub-bituminous coal have been carried on at the University of Colorado by J. W. Horne and A. D. Bauer. Purpose of the work is to obtain information on the amount and character of oil or tar available from different shales, the yield of light oil that might be suitable for use as motor fuel, and the volume of commercial by-products that could be recovered.

The average crude oil or tar yield of the 14 lignites analyzed five gallons to the ton and of the 16 sub-bituminous coals, 12.9 gallons to the ton. The average gasoline yield for all coals was 1.4 gallons per ton. The coal tars, when distilled produced about 45 per cent of light oil, a part of which could be used for motor fuel. Oil shales made a much better showing, averaging 17.3 gallons of distillate per ton.

Converse County

Casper, Wyo.—Criterion Oil Company reports a good showing of both oil and gas from the Sundance sand in the test on Irvine structure, Converse County. Location is in northeast 5-31-70. Test is at present shut down, waiting for a string of casing to shut off about 1800 feet of water standing in the hole. If the well proves commercial, it will be one of the most important discoveries made in Central Wyoming in years and will rank in importance with the discoveries of Salt Creek and the Big Muddy field.

Tanks Filled

Salt Lake City, Utah.—The discovery well of the Moab district, Frank Shafer 1, section 6-27-21, on Cane Creek dome, has temporarily suspended pumping fuel for the John L. Shafer 1, which is to be drilled on the flank of the structure, because tankage is practically filled with oil. The derrick for the John L. Shafer well is already on hand, and other equipment is moving in. Hole is to be spudded by January 1. This is the first flank test of the Utah Southern Oil Company's program to develop the salt domes of the Moab area, and a second test to be located still farther out of the flank of Cane Creek, will be drilled upon the completion of the John L. Shafer.

Utah Southern Oil Company is completing arrangements to drill a test on Salt Valley anticline, about 20 miles north of Moab, and it is announced that operations will start as soon as certain extensions of prospecting permits are granted by the government.

Receiver to Turn Teapot Dome Leases Over to Government; Handling Not Determined

CASPER, WYO. — December 28 has been set as the date upon which the receivers for the Mammoth Oil Company, the attorneys for the federal government, and counsel for the Mammoth will appear in federal court of the District of Wyoming for the entering of a formal decree by Judge Kennedy for the return of the Teapot Dome lease to the United States Navy. What the procedure will be after the property has been formally turned over to the navy has not been announced. Lieutenant Commander W. H. Osgood, inspector in charge of the United States petroleum and oil shale reserves in the Rocky Mountain Region, may possibly remain in charge, or there may be a special appointment for custodian of the property. There is some speculation as to whether or not the appointment of supervisor from the Mineral Leasing Division, U. S. G. S., might not be proper.

Report in Casper is that work is already under way for the shutting in of the gas and oil wells on the dome. Until recently the gas produced has been sold to the New York Oil Company, which has an absorption plant at Teapot. After the gasoline content was removed the gas was piped to Glenrock where the New York company sold it to Continental Oil Company for use in its refinery, and to the town of Glenrock for domestic and industrial consumption.

There are approximately 50 producing wells on Teapot Dome which for the last two years have been averaging more than 1000 barrels per day. This has been purchased by Sinclair Crude Oil Purchasing Company, under an escrow agreement, until recently. White Eagle Oil and Refining Company has been buying it since a late date. Quantity transferred to the White Eagle was about 27,000 barrels in storage and it is anticipated that this amount will be increased to practically 50,000 barrels before the wells are shut in by the government.

A situation which is somewhat of a paradox has arisen between the government and companies having producing wells in the south end of the Salt Creek field. While attorneys for the government and authorities in charge at Washington have insisted that there is no drainage of oil from Teapot Dome by the wells in the south end of the field, the government recently has written these companies demanding "compensating royalty" because of the shut down of wells on Teapot. Should the companies be forced to accede to the request, they would be paying a double royalty .

Ira G. Wetherill, vice-president of the National Supply Company, has moved his headquarters from Independence, Kansas, to Denver where he will direct the management of company affairs in the Rocky Mountain region.

Wishing the Oil and Gas Industry A Year of Unexcelled Prosperity

View of Complete Layne Screen

Every member of the Layne & Bowler "gang" wishes for all of you a year of Oversized Prosperity, and we are taking this opportunity to thank you for the business you have given us during the last year. It has been a pleasure to serve you, and we sincerely hope that you will continue to take advantage of our quarter of a century's experience in solving oil industry problems.

We will gladly furnish you complete information on our improved Keystone Wire Wrapped Screen, recently introduced to the Oil Industry. It has a much enlarged inlet area and is just as strong as the old screen, which means greater production.

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Open Fort Worth Office

Fort Worth, Texas.—A branch sales office has been established at 201 Petroleum Building, Fort Worth, by the Graver Corporation, Chicago, while T. W. Crosby, sales engineer, and H. E. Clark, representative of the refinery equipment division, have been transferred from Tulsa to the new office.

J. L. Wiley has joined the staff of Arthur D. Little, Inc., chemists and engineers of Cambridge, Massachusetts. He was formerly librarian and translator for the Solvay Process Company and will do similar work in his new connection.

G. Henry Mahlstedt, president and principal stockholder in the Mahlstedt Oil Company, which operates in the North Central Texas district with headquarters at Fort Worth, died December 16 after a brief illness at his home in New Rochelle, N. Y. Mahlstedt was well known among the operators in the Ranger-Breckenridge district He was 38 years old, and is survived by a widow.

Carl Russ, chief clerk of the Gulf Production Company, Houston, accompanied by his wife and their children spent Christmas in Orange visiting relatives.

Thomas J. Megear, James H. Barr and S. J. Leonard have been elected to the board of directors of the Simms Petroleum Company to succeed Matthew C. Brush, Harry Bronner and John J. Watson, Jr., resigned. This action was taken at a recent board meeting, at which Mr. Megear and Earnest Stauffen, Jr., were elected to serve on the company's executive committee.

Mr. and Mrs. S. A. Grogan of Tampico, Mexico, are in Houston spending the holidays. Mr. Grogan is chief geologist for the Mexican Gulf Oil Company.

West Texas Production

CRANE COUNTY

	Producing Wells	Daily Average Prod.
Church & Fields—		
Simms Oil Co. & Atlantic Oil Prod. Co.	29	26,400
Landreth Production Corp.	16	12,960
Tidal Oil Co. & Turman-Maxwell	22	10,060
Eastland Oil Co. & Collett-O'Keefe	8	8,795
Prairie O. & G. Company	11	*6,355
Humble Oil & Refining Co.	13	6,180
Magnolia Petorleum Company	30	5,860
Pecos Oil Company	12	4,115
Church-Fields & Bert Weekly	3	1,605
Gulf Production Company	10	1,565
The Texas Company	2	260
Geo. Church & Bob Fields	2	250
Independent Oil & Gas Co.	6	*145
Stidham & Thrasher	1	15
Totals	165	84,565
Gulf-McElroy—		
Gulf Production Company	55	18,455
Gulf-Waddell—		
Gulf Production Company	1	20
Marland-Hughes—		
Marland Oil Company	16	675
The Texas Company	9	270
McMan Oil & Gas Company	2	65
Independent Oil & Gas Company	1	5
Totals	28	1,015
Totals for Crane County	249	104,055

UPTON COUNTY

Texas & Pacific Coal & Oil Co.	17	2,510
Roxana Petroleum Corp.	36	2,095
Dixie Oil Company	36	2,065
Marland Oil Company	78	2,035
Gulf Production Company	15	1,990
The Texas Company	22	1,710
Prairie O. & G. Company	8	1,205
Humble Oil & Refining Corp.	10	880
Champlin Refining Company	3	815
Independent Oil & Gas Company	26	640
Amerada Petroleum Corp.	6	280
Orient Oil Operating Co.	1	265
Sun Oil Company	10	195
Snowden & McSweeney	1	195
Wentz Oil Corporation	3	125
Republic Prod. Co. & Marland Oil Co.	5	90
Tidal Oil Company	3	80
Atlantic Oil Producing Co.	1	40
Simms Oil Company	3	35
Bryant & Atlantic Oil Prod. Co.	2	30
McMan Oil & Gas Co.	2	20
Texon Oil & Land Co.	1	15
Totals	290	17,315

REAGAN COUNTY

	Wells Producing	Prod. Daily Average
Big Lake Oil Company	123	16,450
Texon Oil & Land Company	80	6,430
Totals	203	22,880

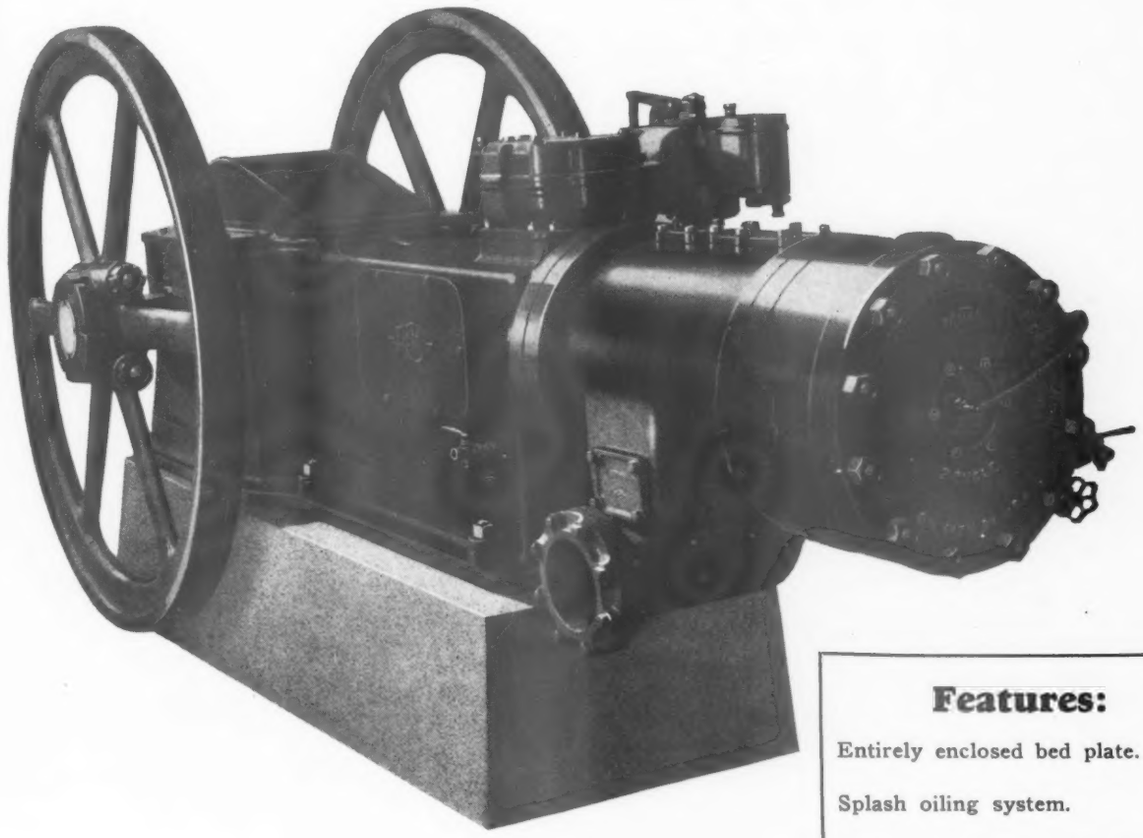
PECOS COUNTY

Mid-Kansas-Transcontinental	36	*18,110
The California Company	11	*8,710
Gulf Production Company	5	*5,895
Gulf Prod. Co. (Crockett Co.)	3	1,660
McMan O. & G. Co. & Marland Oil Co.	12	*4,545
Humble Oil & Refining Co.	7	*2,995
Simms Oil Company	3	*1,830
Marland Oil Company	10	*1,475
Roxana Petroleum Corp.	5	*935
Crude Oil Company (was Allsman-Bell)	3	*290
Mazda Oil Corp. & Savoy Oil Co.	1	*125
Kirby Pet. Co. & Edson Pet. Co.	1	*95
Red Bank Oil Company	2	*40
Totals	99	46,705

WINKLER COUNTY

Landreth Prod. Corp. & Roxana	4	9,630
Humble Oil & Refining Co.	3	7,800
Southern Crude & R. A. Westbrook	3	7,465
Atlantic Oil Producing Co.	3	*6,060
Cranfill-Reynolds	2	*5,530
Southern Crude & Dixie Oil Co.	6	*4,715
Republic Production Co.	1	4,320
Texon Oil & Land Company	1	3,650
Roxana Petroleum Corp.	2	*3,420
Gulf Production Company	6	*3,220
Magnolia Petroleum Company	2	*3,205
Independent Oil & Gas Co.	3	*2,120
Murchison Oil Co. & Cranfill Bros.	4	880
Joe Maxwell & L. C. Turman	1	*40
Llano Oil Co. & Roxana	1	20
The Texas Company (was Pure)	1	...
Totals	43	62,075
Miscellaneous Counties	309	12,900
Totals for West Texas	1193	265,930
Totals previous week	1178	272,190

*Production partially pinched.



The New Reid Type C Two Cycle Gas Engines are built in two sizes, 40 HP and 45 HP. They have been designed particularly for heavy duty reverse work, and for use in oil fields where a totally enclosed engine is desirable.

Features:

Entirely enclosed bed plate.

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Bored cross-head guide.

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Improved speed wheel arrangement.

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Greater power and economy.

Unprecedented speed range.

Joseph Reid Gas Engine Company, Oil City, Pennsylvania, U. S. A.

BRANCHES AND AGENCIES—Marietta, Ohio; Logan, Ohio; Newark, Ohio; Shreveport, La.; Charleston, W. Va.; R. B. Moore, Bolivar, N. Y.; Frick & Lindsay Co., Bradford, Penna., and Kentucky Distributors; S. R. Shoup, 724 Board of Trade Bldg., Los Angeles, Cal.; Frick-Reid Supply Company, Tulsa, Oklahoma, and Branches, Distributors for Oklahoma, Kansas, Texas, Arkansas and Wyoming. Branch Shop, Tulsa, Oklahoma.

EXPORT SALES REPRESENTATIVE: Oil Field Equipment Co., Inc., 30 Church St., New York City.

REID OIL FIELD MACHINERY

United States Daily Average Production

Figures below are taken from the complete revised estimates of the AMERICAN PETROLEUM INSTITUTE except for the current week, which are advance estimates issued by the A. P. I. and are subject to revision:

1926	Oklahoma	Kansas	Texas (Outside Gulf Coast)	Gulf Coast	North Louisiana	Arkansas	Eastern States	Rocky Mountain	California	United States Daily Ave.	United States Total
January	445,950	99,600	256,500	90,100	43,800	178,000	100,450	101,700	618,750	1,934,850	59,979,900
February	450,300	102,050	246,600	91,550	45,300	169,400	98,950	101,050	604,950	1,910,150	53,483,900
March	457,900	103,000	260,500	91,950	48,800	165,700	97,800	102,100	604,400	1,932,150	59,897,250
April	464,850	102,600	265,600	90,900	51,550	170,750	101,750	107,300	600,650	1,955,950	58,678,000
May	463,350	106,150	280,050	93,700	59,100	175,700	106,100	111,650	602,400	1,998,200	61,944,950
June	459,100	107,900	305,100	91,350	60,350	166,950	106,050	113,300	607,550	2,017,650	60,529,350
July	456,700	110,450	336,300	116,550	57,100	161,650	104,650	107,750	614,400	2,065,550	64,032,300
August	465,300	111,750	383,800	162,800	56,800	157,350	108,600	110,600	608,900	2,165,900	67,143,450
September	466,050	113,400	403,750	175,200	56,850	153,250	110,200	104,700	598,150	2,181,550	65,446,500
October	503,350	114,650	444,700	169,900	58,200	149,500	109,450	98,500	614,200	2,262,450	70,136,500
November	550,700	115,800	477,000	176,900	56,450	143,700	111,150	92,900	643,650	2,368,250	71,047,550
December	564,250	118,800	480,800	181,900	54,800	138,600	110,050	85,650	660,400	2,395,250	74,252,700
1927											
January	598,500	117,200	466,400	173,900	52,900	131,550	107,850	84,450	653,450	2,386,200	73,972,150
February	693,350	116,250	479,800	154,600	52,800	128,200	107,150	85,300	642,700	2,460,150	68,884,300
March	710,350	116,100	475,000	154,750	51,450	124,500	104,400	87,600	640,850	2,465,000	76,414,900
April	723,700	115,400	477,300	155,100	50,500	113,350	108,000	89,350	644,550	2,477,250	74,317,750
May	742,200	114,600	488,700	151,300	47,450	112,700	114,000	89,300	633,550	2,493,800	77,307,700
June	768,600	112,200	480,800	151,650	49,150	112,450	111,850	86,050	638,550	2,511,300	75,338,900
July	846,750	107,750	475,800	142,950	56,200	109,900	111,800	86,950	620,700	2,558,800	79,322,300
August	832,900	105,100	483,450	139,350	56,950	104,750	114,600	80,750	621,450	2,539,300	78,717,850
September	797,450	105,200	493,750	142,900	53,450	101,350	110,800	74,500	637,250	2,516,650	75,498,900
October	782,300	105,100	497,900	138,400	51,300	100,450	113,600	73,250	629,000	2,491,300	77,230,000
November	766,900	106,650	501,750	138,100	49,400	97,850	114,900	75,050	623,850	2,474,450	74,233,500
December 3	766,000	106,300	507,300	135,850	48,000	96,650	113,750	79,550	626,400	2,480,750	17,365,250
December 10	736,200	106,050	546,500	141,150	47,650	96,100	112,000	74,450	627,400	2,487,500	17,412,500
December 17	720,300	105,050	532,450	141,700	47,200	95,200	111,000	79,950	624,100	2,456,950	17,198,650
December 24	705,750	105,550	533,400	136,200	47,000	94,350	110,500	78,050	621,300	2,432,200	17,025,400
Increase	.....	500	950	.....	.....	.....	500	.....	.....	.....	.....
Decrease	14,550	.....	.....	5,500	200	850	.....	1,900	2,800	24,750	173,250

TEXAS

(Outside Gulf Coast)

PANHANDLE DISTRICT

	Dec. 24	Dec. 17
Hutchinson County	55,300	56,350
Gray County	19,300	20,100
Carson County	7,900	7,500
Wheeler County	1,350	1,400
Others	50	50
Totals	83,900	85,400

NORTH TEXAS

Burkburnett	11,800	11,900
Electra	11,700	11,750
Iowa Park-KMA	1,900	1,900
Wilbarger	11,100	11,250
Archer County	22,900	23,000
Clay County (Petrolia)	600	600
Baylor County	100	100
Montague and Cooke Cos.	15,250	15,500
Totals	75,350	76,000

WEST CENTRAL TEXAS

Stephens County	8,050	7,950
Eastland-Desdemona	9,150	9,000
Brown County	17,250	17,500
Coleman County	1,000	1,050
Callahan County	4,250	4,200
Shackelford County	5,000	5,100
Young County	10,300	10,150
Throckmorton County	1,050	1,150
Jack County	1,250	1,200
Palo Pinto County	450	450
Others	400	400
Totals	58,150	58,150

WEST TEXAS

Jones County	1,400	1,450
Mitchell-Scurry Cos.	3,300	3,400
Howard County	5,800	5,950
Reagan County	22,700	22,950
Crane-Upton Counties	119,000	121,100
Crockett County	3,400	3,500
Pecos County	44,300	45,300
Winkler County	62,000	54,300
Others	2,550	2,700
Totals	264,450	260,650

EAST CENTRAL TEXAS

Mexia	8,400	8,450
Currie	600	600
Richland	700	700
Wortham	2,250	2,300
Corsicana-Powell	13,050	13,150
Nigger Creek	1,950	2,050
Totals	26,950	27,250

SOUTHWEST TEXAS

Luling	14,000	14,250
Lytton Springs	1,600	1,600
Somerset	400	850
Laredo District	800	7,500
Piedras Pintas	7,450	400
Others	400	400
Totals	24,650	25,000
T'tl Tex. (Outside Gulf Coast)	.....	532,450

TEXAS GULF COAST

West Columbia	8,900	8,600
Damon Mound	900	800
Big Creek	2,150	2,450
Boling	2,250	2,750
Blue Ridge	3,800	4,200
Pierce Junction	12,000	15,300
Humble	1,950	1,950
Goose Creek	7,500	7,650
South Liberty	2,000	2,300
Hull	12,400	12,700
Saratoga	1,000	1,000
Batson	1,300	1,300
Sour Lake	3,850	3,900
Spindle Top	53,500	55,000
Orange County	4,150	3,850
Barbers Hill	1,050	950
Others	2,650	2,750
Totals	121,350	127,450
Texas Total	654,750	659,900

OKLAHOMA

North Braman	3,100	2,850
South Braman	1,950	2,050
Blackwell	3,850	3,850
Hubbard	2,850	2,850
Thomas	1,900	1,950
Tonkawa	1,520	15,550
Garber	10,450	10,050
Burbank	36,850	36,900
Osage (outside Burbank)	29,800	29,850
Watchorn	1,350	1,500
Cushing	21,050	21,100
Yale Jennings	9,100	9,100
Davenport	2,400	2,500
Bristow Slick	24,600	24,600
North Okmulgee	16,000	16,000
Lyons Deaner	6,200	6,250
Stroud	1,250	1,250
Cromwell	10,600	10,750
Panoose	5,650	5,700
Wewoka	10,450	10,450
Seminole	55,650	55,700
Bowlegs	108,450	112,350
Searight	21,300	22,100
Little River	38,750	40,300
Earlsboro	143,100	150,450
Duncan District	6,650	6,700
Graham	6,450	6,550
Fox	1,900	1,900
Healdton	14,700	14,700
Hewitt	9,400	9,400
Scholem Alechem	12,350	12,400
Others	72,450	72,650
Totals	705,750	720,300

CALIFORNIA

Santa Fe Springs	38,500	38,500
Long Beach	113,000	112,000
Huntington Beach	61,000	61,000
Torrance	20,000	20,000
Dominguez	14,000	14,500
Rosecrans	8,500	8,500
Inglewood	31,800	32,000
Midway-Sunset	81,000	81,000
Ventura Avenue	51,500	53,600
Seal Beach	43,000	43,000
Others	159,000	160,000
Totals	621,300	624,100

ARKANSAS

El Dorado	6,250	6,500
Smackover Light	9,350	9,250
Smackover Heavy	71,550	72,450
Stephens	1,150	1,150
Nevada	3,350	3,150
Lisbon	2,600	2,650
Others	100	100
Totals	94,350	95,200

KANSAS

	Dec. 24	Dec. 17
Greenwood County	31,000	31,100
Florence-Covert	1,400	1,400
Peabody-Ebling	3,750	3,750
Eldorado-Towanda	14,250	14,200
Augusta-Fox Bush	4,150	4,150
Rainbow Bend	2,100	2,100
Russell	2,300	2,250
Churchill	12,550	12,600
Others	34,000	33,500
Totals	105,550	105,050

NORTH LOUISIANA

Homer	4,500	4,550
Haynesville	6,600	6,750
Caddo Light	12,050	11,750
Caddo Heavy	3,750	3,950
De Soto-Red River	4,200	4,200
Elm Grove	650	650
Bellevue	1,100	1,200
Cotton Valley	4,800	4,900
Urania	8,500	8,500
Pleasant Hill	850	750
Totals North Louisiana	47,000	47,200

LOUISIANA GULF COAST

Vinton	4,750	4,850
Lockport	4,800	5,100
Evangeline	1,200	1,200
Edgerly	2,600	1,500
Others	1,550	1,600
Total Louisiana Gulf Coast	14,900	14,250
Louisiana Totals	61,900	61,450

MOUNTAIN STATES

WYOMING

Salt Creek	42,550	42,100
Grass Creek	2,500	2,450
Elk Basin	650	800
Big Muddy	2,700	2,750
Lost Soldier	2,600	2,650
Rock River	2,750	2,750
Lance Creek	650	1,050
Others	3,500	3,350
Totals	57,900	57,900

MONTANA

Cat Creek	1,850	1,900
Sunburst	9,500	11,000
Others	150	150
Totals	11,500	13,050

COLORADO

Moffats (Craig)	1,200	1,150
Fort Collins	3,150	3,050
Florence	750	700
Others	1,300	1,950
Totals	6,350	6,850

NEW MEXICO

Artesia	1,400	1,400
Hogback	600	650
Rattlesnake	200	....
Others	100	100
Totals	2,300	2,150
Totals Mountain States	78,050	79,950

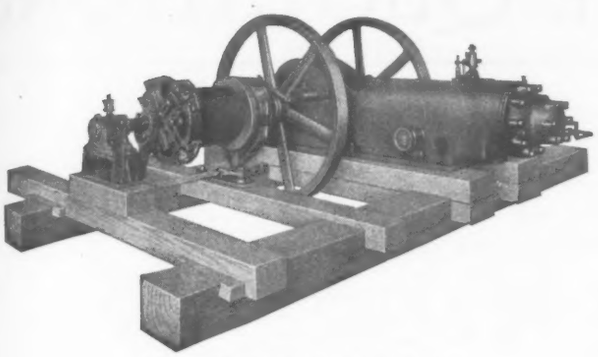
EASTERN STATES

(Including Ill., Ind., Ohio, W. Va., Pa., Ky., and N. Y.)	110,500	111,000

PRODUCTION SUMMARY

East of Rockies	1,742,850	1,752,900
United States	2,432,200	2,456,950

FRANKLIN VALVELESS OIL AND GAS ENGINES

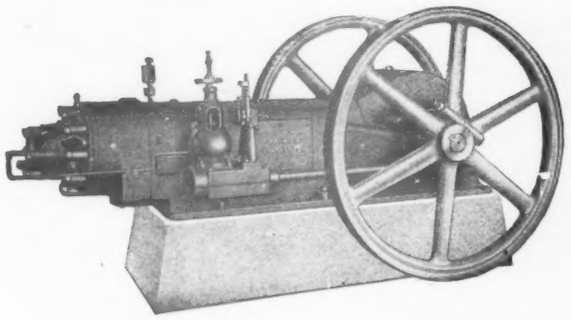


OIL DRILLING ENGINE

for Mid-Continent and Western Service $3700. Eastern Service $2600 and $3350. F. O. B. Factory.

OIL PUMPING ENGINE

In horse powers of 30, 40, 50 and 75. Can be equipped with reverse or one way clutch.



In Drilling or Pumping

On the Twin State's wildcatter at Stillwater, Texas, W. J. Bradley, Driller, put down 500 feet of 24-inch hole in seven days' drilling with a Franklin Valveless Oil Drilling Engine. The cost was $2.50 per day for water and the same for fuel oil—a saving of $30.00 per day over his previous experience with steam.

Show a drilling contractor a power plant that will drill more hole at a lower cost and with less trouble and he's "sold." Show him its lighter running mate that will do his swabbing and pumping at an even lower cost and he knows his troubles are solved. Try a Franklin Engine for results and economy.

Fuel costs—less than a Ford automobile. Repair bills—many Franklin Engines have drilled from 10 to 30 wells without costing one cent in repairs. Water bills cut many times. Ask a Franklin user.

FRANKLIN VALVELESS ENGINE CO.
FRANKLIN, PENNA.

Distributed by

OIL WELL SUPPLY CO.

Branches in All Oil Fields

CRUDE OIL PRICE QUOTATIONS

CURRENT POSTINGS

EASTERN STATES

	Dec. 27 1927
New York Transit	$2.65
Bradford District	2.65
National Transit	2.55
Southwest	2.55
Eureka	2.50
Buckeye	2.25
Macksburg	2.80
Gaines	2.60
Somerset	1.50
Cabell	1.40
Ragland	.95
Corning, 35-cent grade	1.45
Corning, 25-cent grade	1.35
Keister	1.10

CENTRAL STATES

Illinois	1.60
Indiana	1.48
Lima	1.71
Plymouth	1.33
Princeton	1.60
Waterloo	1.18
Wooster	1.57

WESTERN KENTUCKY

Posted by Stoll Refining Company for crude from Allen, Warren, Franklin, Davies, Barren, All grades 1.50

MID-CONTINENT

Prairie, Sinclair, Gulf, Texas and Magnolia*

	Dec. 27 1927
28 to 28.9 gravity	1.12
29 to 29.9 gravity	1.14
30 to 30.9 gravity	1.16
31 to 31.9 gravity	1.18
32 to 32.9 gravity	1.20
33 to 33.9 gravity	1.22
34 to 34.9 gravity	1.24
35 to 35.9 gravity	1.26
36 to 36.9 gravity	1.28
37 to 37.9 gravity	1.30
38 to 38.9 gracity	1.32
39 to 39.9 gravity	1.34
40 to 40.9 gravity	1.36
41 to 41.9 gravity	1.38
42 to 42.9 gravity	1.40
43 to 43.9 gravity	1.42
44 to 44.9 gravity	1.44
45 to 45.9 gravity	1.46
46 to 46.9 gravity	1.48
47 to 47.9 gravity	1.50
48 to 48.9 gravity	1.52
49 to 49.9 gravity	1.54
50 to 50.9 gravity	1.56
51 to 51.9 gravity	1.58
52 and above	1.60

*Magnolia's price for below 30 gravity is $1.05. Magnolia's price on Glasscock County crude is 80 cents per barrel, flat, and is also 80 cents on all crude in Howard County that comes from section 136, block 29 W & NW Railway Survey.

NORTH AND CENTRAL TEXAS

Ranger, North Texas, Mexia, Powell, Richland, Wortham, Currie, Moran, Nocona and Lytton Springs crude.

Humble O. & R. Co. and Texas Co.*

	Dec. 27 1927
Below 25 gravity	.90
25 to 25.9 gravity	1.06
26 to 26.9 gravity	1.08
27 to 27.9 gravity	1.10
28 to 28.9 gravity	1.12
29 to 29.9 gravity	1.14
30 to 30.9 gravity	1.16
31 to 31.9 gravity	1.18
32 to 32.0 gravity	1.20
33 to 33.9 gravity	1.22
34 to 34.9 gravity	1.24
35 to 35.9 gravity	1.26
36 to 36.9 gravity	1.28
37 to 37.9 gravity	1.30
38 to 38.9 gravity	1.32
39 to 39.9 gravity	1.34
40 to 40.9 gravity	1.36
41 to 41.9 gravity	1.38
42 to 42.9 gravity	1.40
43 to 43.9 gravity	1.42
44 to 44.9 gravity	1.44
45 to 45.9 gravity	1.46
46 to 46.9 gravity	1.48
47 to 47.9 gravity	1.50
48 to 48.9 gravity	1.52
49 to 49.9 gravity	1.54
50 to 50.9 gravity	1.56
51 to 51.9 gravity	1.58
52 and above	1.60

Corsicana Heavy, $1.00 per barrel, posted by Magnolia.

*The Texas Company's Postings begin at 28 to 28.9.

SOUTH TEXAS

Mirando	1.00

SOMERSET

Grayburg

	Dec. 27 1927
Below 33 gravity	1.05
33 to 33.9 gravity	1.07
34 to 34.9 gravity	1.09
35 to 35.9 gravity	1.11
36 to 36.9 gravity	1.13
37 to 37.9 gravity	1.15
38 and above	1.17

GULF COAST

Grade "A" all companies	1.20
Gulf Coast Light Oil, below 25	1.15
25 to 25.9 gravity	1.17
26 to 26.9 gravity	1.19
27 to 27.9 gravity	1.21
28 to 28.9 gravity	1.23
29 to 29.9 gravity	1.25
30 to 30.9 gravity	1.27
31 to 31.9 gravity	1.29
32 to 32.9 gravity	1.31
33 to 33.9 gravity	1.33
34 to 34.9 gravity	1.35
35 to 35.9 gravity	1.37
36 to 36.9 gravity	1.39
37 to 37.9 gravity	1.41
38 to 38.9 gravity	1.43
39 to 39.9 gravity	1.45
40 and above	1.47

*Humble Oil & Refining Company's postings on Gulf Coast Light stop at 35 to 35.9. Its price on all crudes above 35 to $1.37 per barrel.

Magnolia Petroleum Company's postings stop at 31 to 31.9.

CALIFORNIA CRUDE OIL PRICES AT THE WELL

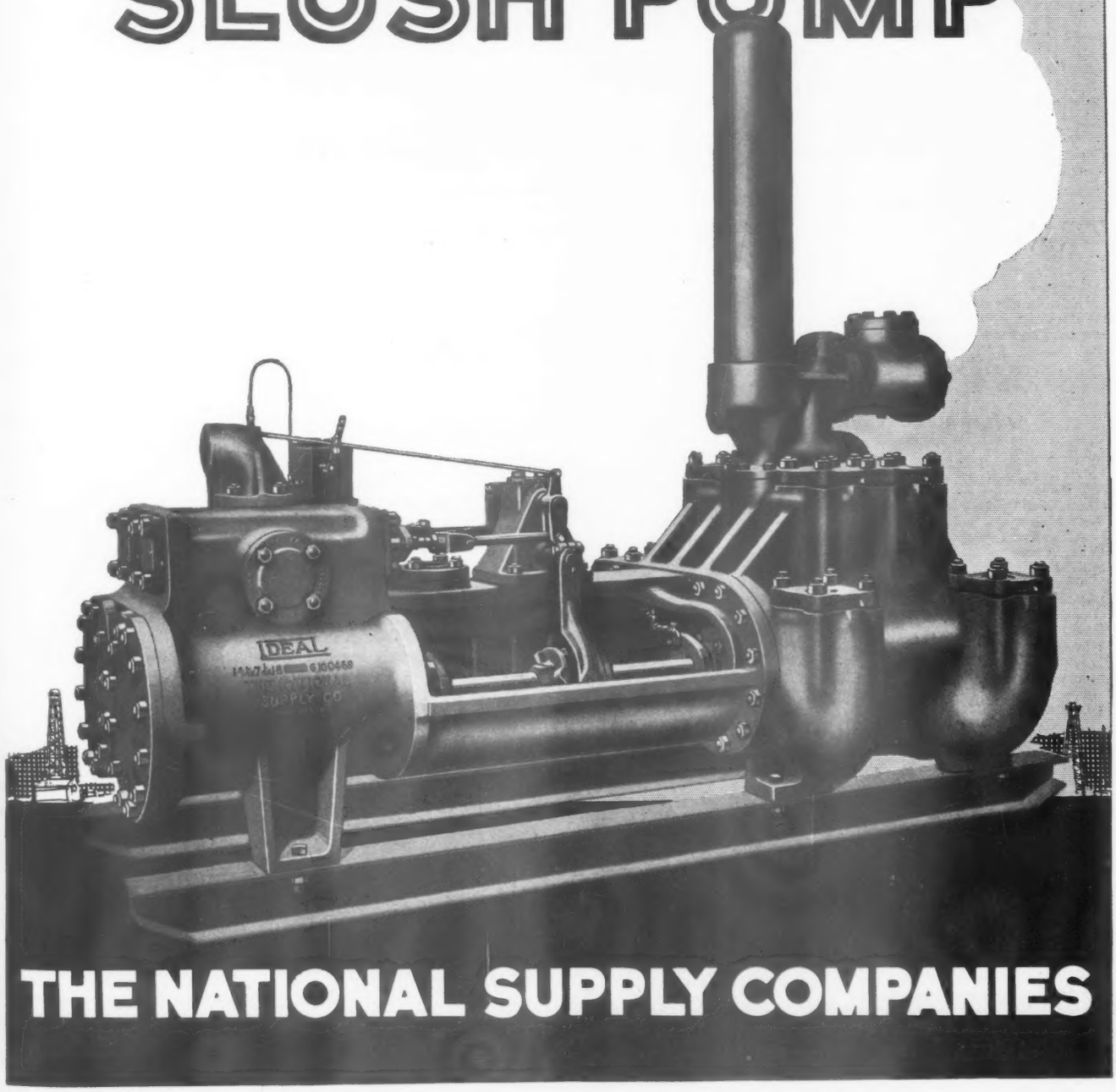
Following are the current prices offered by Standard Oil Company for crude oil at the well: (Price per barrel of 42 gallons in fields indicated.)

Gravity (degrees)	Signal Hill	Seal Beach	Huntington Beach	Inglewood	Olinda-Brea Canon	Athens-Rosecrans Dominguez	Torrance	Richfield	Whittier La Harbra		Coyotte Hill	Santa Fee Springs	Newhall McKittrick Kern River	Midway Sunset Elk Hills	Buena Vista Hills	Lost Hills	Coalinga	Wheeler
14-14-9	$ .85	$ .85	$ .85	$ .85	$ .85	$ ..	$. .85	$ .85	$. .85	$ .85	$ .85	$ ..	$ .75	$ .75	$ .75	$ .75	$ .75	$ .75
15-15-9	.85	.85	.85	.85	.85	..	.85	.85	.85	.85	.85	..	.75	.75	.75	.75	.75	.75
16-16-9	.85	.85	.85	.85	.85	..	.85	.85	.85	.85	.85	..	.75	.75	.75	.75	.75	.75
17-17-9	.85	.85	.85	.85	.85	..	.85	.85	.85	.85	.85	..	.75	.75	.75	.75	.75	.75
18-18-9	.85	.85	.85	.85	.85	..	.85	.85	.85	.85	.85	..	.75	.75	.75	.75	.75	.75
19-19-9	.85	.85	.85	.85	.85	..	.85	.85	.85	.85	.85	..	.75	.75	.75	.75	.75	.75
20-20-9	.85	.85	.85	.85	.85	..	.85	.85	.85	.85	.85	..	..	.77	.77	.77	.76	.76
21-21-9	.86	.86	.86	.86	.86	..	.86	.86	.85	.85	.86	.85	..	.79	.79	.79	.77	.77
22-22-9	.87	.87	.87	.87	.87	..	.87	.87	.85	.85	.87	.85	..	.81	.81	.81	.78	.78
23-23-9	.88	.88	.88	.88	.88	..	.88	.88	..	.85	.88	.85	..	.83	.83	.83	.79	.79
24-24-9	.89	.89	.89	.89	.89	..	.89	.89	..	.85	.89	.85	..	.85	.85	.85	.80	.80
25-25-9	.90	.90	.90	.90	.90	.90	.90	.90	..	.86	.90	.86	..	.87	.87	.87	.81	.81
26-26-9	.92	.92	.92	.92	.92	.92	.92	.92	..	.87	.91	.87	..	.89	.89	.89	.83	.82
27-27-9	.94	.94	.94	.94	.94	.94	.94	.94	..	.88	.92	.88	..	.91	.91	.91	.85	.83
28-28-9	.96	.96	.96	.96	.96	.96	.96	.96	..	.89	.93	.89	..	.93	.93	.93	.87	..
29-29-9	.98	.98	.98	..	.98	.98	..	1.00	..	.91	.95	.93	..	.99	.99	.99	.91	..
30-30-9	1.00	1.00	1.00	..	1.00	1.00	..	..	..	..	..	.95	..	1.02	1.02	1.02	.93	..
31-31-9	1.03	1.03	1.03	..	..	1.03	..	..	..	..	..	.97	..	1.05	1.05	1.05	.95	..
32-32-9	1.06	1.06	1.06	..	..	1.06	..	..	..	..	..	.99	..	1.08	1.08	1.08	.97	..
33-33-9	..	..	..	..	..	1.09	..	..	..	..	..	1.01	..	..	..	1.11	.99	..
34-34-9	..	..	..	..	..	1.12	..	..	..	..	..	1.03	..	..	..	..	1.01	..
35-35-9	..	..	..	..	..	1.15	..	..	..	..	..	1.06	..	..	..	..	..	..
36-36-9	..	..	..	..	..	1.18	..	..	..	..	..	1.09	..	..	..	..	..	..
37-37-9	..	..	..	..	..	1.21	..	..	..	..	..	1.12	..	..	..	..	..	..
38-38-9	..	..	..	..	..	1.24	..	..	..	..	..	1.15	..	..	..	..	..	..
39-39-9	..	..	..	..	..	1.27	..	..	..	..	..	..	..	..	..	..	..	..
40-40-9	..	..	..	..	..	1.30	..	..	..	..	..	..	..	..	..	..	..	..
41-41-9	..	..	..	..	..	1.33	..	..	..	..	..	..	..	..	..	..	..	..
42-42-9	..	..	..	..	..	1.36	..											

IDEAL

14½ X 7½ X 18

DUPLEX SLUSH PUMP



THE NATIONAL SUPPLY COMPANIES

Say you saw it in The OIL WEEKLY.

MARKHAM

	Dec. 27 1927
The Texas Company	
All grades	1.00

LULING

All grades	1.00

PANHANDLE

(Humble Oil & Refining Company and Magnolia Petroleum Company, Gulf Pipe Line Company and Kay County Gas Company)*

Hutchinson, Carson and Wheeler counties, all grades	.75

*Gulf and Kay County do not post in Wheeler County.

Gray County
(Humble Oil & Refining Company)

28 to 28.9 gravity	.80
29 to 29.9 gravity	.82
30 to 30.9 gravity	.84
31 to 31.9 gravity	.86
32 to 32.9 gravity	.88
33 to 33.9 gravity	.90
34 to 34.9 gravity	.92
35 to 35.9 gravity	.94
36 to 36.9 gravity	.96
37 to 37.9 gravity	.98
38 to 38.9 gravity	1.00
39 to 39.9 gravity	1.02
40 to 40.9 gravity	1.04
41 to 41.9 gravity	1.06
42 to 42.9 gravity	1.08
43 to 43.9 gravity	1.10
44 and above	1.12

(Humble Oil & Refining Company)

Crane, Upton, Crockett and Pecos counties, all grades	.60

WEST TEXAS

(Humble, Gulf, Magnolia, Kay County Gas Company and Southern Crude Oil Purchasing Company)*

Crane, Crockett, Pecos, Upton and Winkler, Counties	.60

*Kay County Gas Company does not buy in Winkler and Pecos Counties, and Southern does not buy in Pecos or Crockett.

Col-Tex Refining Company

Mitchell County	$ .93

WYOMING-MONTANA
Wyoming

Byron	1.33
Ferris	1.60
Elk Basin	1.33
Grass Creek	1.33
Rock Creek	1.25
Lost Soldier	.95
Lance Creek	1.33
Mule Creek	1.10
Notches	.65
Big Muddy	1.25
Osage	1.33
Hamilton Dome	.85
Pilot Butte	1.75
Torchlight-Greybull	1.33
Lander	.80
Simpson Ridge	.80
Rex Lake	1.10
South Casper Creek-Poison Spider	1.00

Salt Creek
Midwest Refining Company

29 to 29.9 gravity	1.14
30 to 30.9 gravity	1.16
31 to 31.9 gravity	1.18
32 to 32.9 gravity	1.20
33 to 33.9 gravity	1.22
34 to 34.9 gravity	1.24
35 to 35.9 gravity	1.26
36 to 36.9 gravity	1.28
37 and above	1.30

MONTANA

Sunburst	1.35
Cat Creek	1.33
Lake Basin	2.20

NEW MEXICO

Artesia	1.00
Hogback	1.38

Canadian Crude

	Dec. 27 1927
Oil Springs	2.18
Petrolia	2.11

*Bounty on Canadian crude is ¾-cent per gallon, or 26¼ cents per barrel.

LOUISIANA-ARKANSAS

(Standard of Louisiana, Louisiana Oil Refining Company, Gulf Refining Company of Louisiana and The Texas Co.) Homer, Haynesville, Caddo, El Dorado, De Soto and Chrichton.

Below 28 gravity	1.10
28 to 28.9 gravity	1.12
29 to 29.9 gravity	1.14
30 to 30.9 gravity	1.16
31 to 31.9 gravity	1.18
32 to 32.9 gravity	1.20
33 to 33.9 gravity	1.22
34 to 34.9 gravity	1.24
35 to 35.9 gravity	1.26
36 to 36.9 gravity	1.28
37 to 37.9 gravity	1.30
38 to 38.9 gravity	1.32
39 to 39.9 gravity	1.34
40 to 40.9 gravity	1.36
41 to 41.9 gravity	1.38
42 to 42.9 gravity	1.40
43 to 43.9 gravity	1.42
44 to 44.9 gravity	1.44
45 to 45.9 gravity	1.46
46 to 46.9 gravity	1.48
47 to 47.9 gravity	1.50
48 to 48.9 gravity	1.52
49 to 49.9 gravity	1.54
50 to 50.9 gravity	1.56
51 to 51.9 gravity	1.58
52 and above	1.60

Atlantic Oil Producing Company posts this same schedule on Homer, Haynesville, and West El Dorado.

Magnolia Petroleum Company has the same posting on Pine Island, Haynesville, Eldorado and Bull Bayou.

STEPHENS
(All Companies)

Below 28	1.00
28 to 28.9 gravity	1.04
29 to 29.9 gravity	1.04
30 to 30.9 gravity	1.06
31 to 31.9 gravity	1.08
32 and above	1.10

SMACKOVER
(All Companies)

Below 24 gravity	$ .85
24 and above	1.00

Bellevue	1.25
Jennings	1.15
Vinton	1.30
Edgerly	1.30
Starks Dome	1.30
Urania	.75
Cotton Valley	.85
Calion	.85

IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

American Petroleum Institute Figures. Barrels of 42 gallons)

	December 17	December 10
AT ATLANTIC COAST PORTS—		
Baltimore	230,000	294,000
Boston	.....	.....
New York	557,000	369,000
Philadelphia	150,000	107,000
Others	79,000	294,000
Total	1,016,000	1,064,000
Daily average	145,143	152,000
AT GULF COAST PORTS—		
Galveston District	.....	40,000
New Orleans and Baton Rouge	60,000	125,000
Port Arthur and Sabine District	26,000	.....
Tampa	.....	23,000
Total	86,000	188,000
Daily average	12,286	26,857
AT ALL UNITED STATES PORTS—		
Total	1,102,000	1,252,000
Daily average	157,429	178,857
Daily average four weeks ended	196,071	208,607

RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF COAST PORTS

American Petroleum Institute Figures. Barrels of 42 gallons)

	December 17	December 10
AT ATLANTIC COAST PORTS——		
Baltimore	110,000	90,000
Boston	.....	94,000
New York	169,000	464,000
Philadelphia	57,000	153,000
Others	.....	65,000
Total	336,000	866,000
Daily average	48,000	123,714
AT GULF COAST PORTS—	.....	*92,000
Daily average	.....	13,143
Total—Atlantic and Gulf Coast Ports	336,000	958,000
Daily average	48,000	136,857
Daily average four weeks ended	68,000	67,643
DISTRIBUTION OF TOTAL CALIFORNIA RECEIPTS IS AS FOLLOWS:		
Crude	110,000	375,000
Gasoline	95,000	165,000
Kerosene	.....	92,000
Gas Oil	74,000	.....
Fuel Oil	.....	326,000
Lubricating Oil	57,000	.....
Total	336,000	958,000

*Revised.

The INTERNATIONAL

Greeting

PROSIT NEUJAHR!
BUŌN CĀPO D'ANNO
AGUINALDO!
ETRENNES!
KUNG-HI!

Happy New Year!

INTERNATIONAL SUPPLY CO.
TULSA OKLA.

Say you saw it in The OIL WEEKLY

COMPLETIONS FOR PAST WEEK IN U.S. FIELDS

OKLAHOMA

Company, Well and Location	Initial Production Bbls.	Depth
CARTER COUNTY—		
Magnolia, M. Morris 2, sw se ne, 21-2s-3w	15	2270
Anderson 1, nw ne nw, 23-1s-3w	100	2485
Simpson 1, nw ne nw, 33-4s-1w	*	4340
J. J. Hardin 8, nec nw, 19-1s-3w	*	2800
CIMARRON COUNTY—		
Gladys Belle Oil Co., Israel 1, swc nw, 25-3n-7e	*	4392
CREEK COUNTY—		
Ted Ray Oil Co., Smiles 2, nw c ne ne, 13-17-10e	30	1909
Drew Oil Co., Miller 1-A, nwc se, 32-18-11e	15	1643
Curtis Oil Co., Rhea 2, nec sw se, 23-16-10e	*	3085
GRADY COUNTY—		
Carter Oil Co., Scharmack 4, ne sw sw, 35-3n-5w	40	1525
Okla. Gas Utilities, Heathley 2, nwc ne, 2-4n-8w	¶40	2400
Stogner et al, McCaughtry 10, sec ne, 23-5n-8w	¶66	2069
HUGHES COUNTY—		
Independent Oil & Gas Co., Irving 5, sec, 18-8-10e	20	3840
KAY COUNTY—		
Harris & Haun, Brown 3, c se sw, 9-27-1w	15	3435
Wentz Oil Corp., Blackwell Country Club 1, swc, 20-27-1w	¶1	697
Harris & Haun, Bechtel 1, c nw se, 22-28-1w	*	....
Blackwell O. & G. Co., Nix 11, sec ne ne se, 18-28-1e	*	3812
Greer et al, Lane 3, c nw ne, 30-28-1e	*	....
Vernon Oil & Gas Co., Brockhouser 4, se sw se, 17-29-1e	*	3537
LINCOLN COUNTY—		
Shaffer O. & R. Co., Skinner 1a, sec sw se, 31-17-5e	865	4289
LOGAN COUNTY—		
Ramsey Bros., Gragg 1, sw se ne, 16-18-4e	90	4085
MUSKOGEE COUNTY—		
Link Oil Co., W. Austin 2, cel se ne, 32-15-15e	*	2191
OKFUSKEE COUNTY—		
J. Burns, Cinda 3, sec sw ne, 12-12-10e	*	2845
OKMULGEE COUNTY—		
A. Shelton, Simer 2, nw c sw, 32-13-14e	8	1210
Riney & Williams, E. Love 2, sec sw, 9-14-14e	¶5	1638
Eagle Picher Lead Co., Bird 1, nwc ne, 5-12-12e	¶2	2338
Sunray Oil Corp., Cooper 1, nec nw, 36-16-13e	¶5	1633
F. Henthorn, J. Rentie 6, nec sw ne, 18-14-15e	*	1300
OSAGE COUNTY—		
I. T. I. O. Co., 387, swc ne ne, 17-27-11e	¶1	747
Kewanee O. & G. Co., 5, ne se sw, 34-27-6e	500	2807
10, nw se nw, 34-27-6e	175	2927
PONTOTOC COUNTY—		
Jack Kilgore, Lena Smith 1, nwc ne, 29-5n-8e	¶3	2685
La. Oil Ref. Co., Harjo 4, se ne sw, 17-5n-8e	200	2456
SEMINOLE COUNTY—		
Tidal Oil Co., House 3, nec nw, 1-7-6	925	4134
Sinclair Oil & Gas Co., Cosar 1, sw nw nw, 36-8-6	2105	4385
Carter Oil Co., Fish 6, swc nw, 36-8-6	785	4204
Fish 5, nwc sw, 36-8-6	380	4234
Magnolia, Hammond 1, sec ne, 10-8-6	285	4267
Gypsy, Harjoche 1, se sw nw, 10-8-6	1347	4219
Barnsdall, Fife 1, nec nw, 14-8-5	1395	4296
Magnolia, Seay 9, se nw sw, 12-9-5	137	4294
Texas Co., Brown 7, se sw nw, 10-9-5	100	4384
Anderson 7, swc se, 2-9-5	575	4278
TULSA COUNTY—		
Glidden Oil Co., Wray 1-A, swc nw, 35-19-13e	¶2	1949
Lockwood et al, Fife 1, nwc sw sw se, 15-19-11e	75	2227
Minshall O. & G. Co., Bruner 3, nwc ne ne, 9-18-13e	*	1679
Anadarko Western Oil Co., Hodge 1, nwc ne nw sw, 33-19-11e	*	2485
WAGGONER COUNTY—		
H. D. McCracken, F. Hosmer 4, nec sw, 21-18-17e	3	889
Knox & Shouse, Lumpkin 1, nec sw nw, 10-17-16e	*	706
G. S. Bentley, Cowhart 1, nwc ne ne se, 25-17-15e	*	1313
Striker & Welch, Sinker 5, nwc se, 19-18-16e	*	820
J. H. Stryker, Letterman 2, nec sw se, 19-18-16e	*	980
R. F. Winter, Bilby 1, nec se sw, 1-19-15e	*	2704

KANSAS

Company, Well and Location	Initial Production Bbls.	Depth
BARTON COUNTY—		
Huffine & Crane, Everleigh 1, c sw sw 6-18-12w	*	4390
COWLEY COUNTY—		
J. A. Hull, Nunman 2, nwc se sw, 24-32-4e	50	3041
Shawver et al, Vestal 1, swc ne, 19-34-3e	*	1884
Nathan & Brinn, Hughes 1, nec nw se, 17-34-4e	*	648
GREENWOOD COUNTY—		
Manhattan Oil Co., Sheppard 6, swc nw nw, 11-22-10e	250	2182
Theta Oil Co., Fankhouser 2, swc se se, 23-22-12e	150	1719
Empire, Ott "B" 1, nec, 26-22-12e	160	1705
Davis et al, School Lot 1, swc nw ne, 30-22-13e	*	1790
STEPHENS COUNTY—		
Independent, Crawford 1, c sw, 31-33-37w	¶5	2805
SUMNER COUNTY—		
Derby, Townlot 1, blk 88, City of Oxford, 14-32-2e	370	1252
Roxana, Rothwell 1, sec ne sw, 14-32-2e	1000	2088
Hartman & Skaer, Hamilton 2, sw c se ne, 18-35-1e	¶6	2301

ARKANSAS

Company, Well and Location	Initial Production Bbls.	Depth
NEVADA COUNTY—		
Humble, Graves B-4, 1-14-21	60	1140
J. J. O'Brien, Moss A-15, 1-14-21	100	1170
UNION COUNTY—		
Grimes Bros., Williams 2, 8-18-14	75	2239
E. M. Jones, Crain 1, 2-17-14	¶10-2000	3062

LOUISIANA

Company, Well and Location	Initial Production Bbls.	Depth
BOSSIER PARISH—		
Bahan & Davis, Dodson 1, 15-23-12	¶5-60	3140
O'Brien Bros., Dodson 1, 22-23-12	¶15	3095
Sales & Walker, Bollinger 3, 30-23-11	50	3091
CADDO PARISH—		
Ferguson et al, Abney 1, 7-17-6	¶4	968
The Texas Co., Noel B-14, 14-21-15	40	3050
MOREHOUSE PARISH—		
Natural Gas Prod. Co., Tensas Delta 10, 27-22-4e	¶3	2220
RICHLAND PARISH—		
Moody & Seagraves, Hemler B-1, 20-16-6e	¶50	2440
McClanahan 1, 36-16-5e	¶36	2454
Nat. G. & F. Corp., Sortor B-2, 19-16-6e	¶62	2445
SABINE PARISH—		
Moffitt et al, Moore 3, 5-9-12	30	3332
WEBSTER PARISH—		
Magnolia, Newsome 1, 32-23-9	¶36	2639

CALIFORNIA

Company, Well and Location	Initial Production Bbls.	Depth
ATHENS-ROSECRANS—		
Union Oil Co., Howard Park 34	175	5000
BALDWIN HILLS-INGLEWOOD—		
Associated Oil Co., B. V. 6, wo	200	2800
B. V. 12, wo	45	2555
Standard Oil Co., B. C. 55	125	2100
B. C. 63	100	2100
HUNTINGTON BEACH—		
California Pet. Corp., Fee 4	100	2150
KERN FRONT—		
George F. Getty, McDougal 1, 26-28-27	250	2085
LONG BEACH—		
Shell Co., Binkley 2	2500	5900
Richfield Oil Co., Booth 9	1850	6035
Delaney Pet. Corp., Britisch 1	400	5215
SEAL BEACH—		
Bankline Oil Co., Weatherwax 2	*	....
Calif. American Oil Co., No. 2	*	....
Dragonet Oil Co., No. 1	*	5250
General Pet. Corp., Wasem 2	*	4825
Wasem 4	*	5050
Paul Getty, Cleaver 3	200	5465
Pet. Securities Co., Horowitz 1	*	....
F. Walker, Jones 2	*	....
California Pet. Corp., Hodges 1	*	4931
Marland Oil Co., Selover 13	*	5546
Miley Oil Co., No. 2	*	5075
Union Pet. Corp., Burge 1	*	5517
SOUTH MOUNTAIN—		
California Pet. Corp., Willard 22	140	3640
SUNSET—		
Standard Oil Co., G-29, 29-31-24	200	4525
VENTURA—		
Bolsa Chica Oil Corp., Hartman 3	800	6620
WEST COYOTE—		
Standard Oil Co., Emery 11	110	3785

SUMMARIZED REVIEW OF FIELD RESULTS

State—	Completions This Week	Completions Last Week	Producers This Week	Producers Last Week	Gas Wells This Week	Gas Wells Last Week	Failures This Week	Failures Last Week	Initial Production This Week	Initial Production Last Week
Arkansas	6	3	4	2	..	..	2	1	2,235	130
California	28	14	15	13	..	..	13	1	7,195	12,355
Illinois	2	5	2	2	..	..	..	3	29	25
Indiana	7	3	1	1	2	..	4	2	20	14
Kansas	12	25	6	12	2	1	4	12	1,980	1,940
Kentucky	13	17	8	7	1	1	4	9	552	546
Louisiana	20	16	4	6	7	4	9	6	180	843
Michigan	1	..	..	..	1	..	..	..	....	....
Montana	..	1	..	1	..	..	..	..	....	8
New York	19	21	19	21	..	..	..	..	39	65
Ohio	16	22	11	5	1	11	4	6	148	158
Oklahoma	52	81	25	31	9	23	18	27	10,185	10,715
Pennsylvania	75	69	65	55	5	12	5	2	162	309
Tennessee	10	..	8	..	..	..	2	..	173	....
Texas	76	90	35	47	2	8	39	35	49,570	76,114
West Virginia	22	26	5	6	15	14	2	6	73	27
Wyoming	..	1	..	1	..	..	..	..	....	100
Totals	359	394	208	210	45	74	106	110	72,541	103,349
Increase this week	..	..	..	..	..	..	..	..	....	....
Decrease this week	35	..	2	..	29	..	4	..	30,808	....

NOTE—Following is the explanation of abbreviations, signs, etc., used in completion and wildcat reports: *—dry hole, abandoned well; ‡—salt water; †—junked and abandoned; ¶—million cubic feet of gas; abn—abandoned; bbls—barrels; b. s.—basic sediment; cas—casing; co—cleaning out; dk—derrick; dr—drilling; fsh—fishing; ft—feet; in—inches; lcn—location; m—milling; n, s, e, w—north, south, east, west; r—reaming; sd—shut down; sdtr—sidetracking; sp—spudding; sr—straight reaming; std—standardizing; sw—salt water; td—total depth; ur—underreaming; wo—workover; woar—waiting on standard rig.

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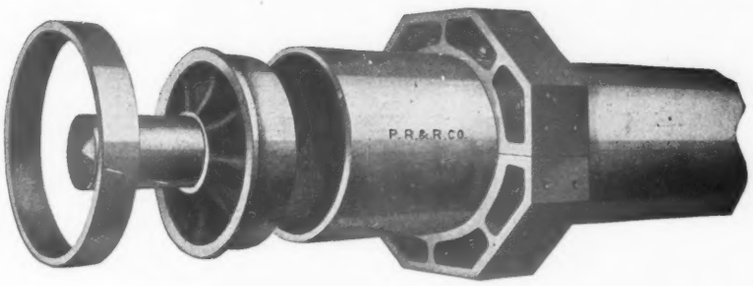
Check the equipment in which you are interested, tear out and return this page to us, and we will send complete information.



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TYPICAL of the quality of design, material and workmanship that goes into Parkersburg Steel Wheels is the method used to apply Bull and Calf Wheel Gudgeons. Forced on the steel shafts with a hydraulic pressure of 70 tons, these ***gudgeons can't come loose.***

Other exclusive Parkersburg features impart an ability to render ***exceptional*** service.

Patented Octagonal Hubs assure perfect alignment and quick assembly. There can be no difficulties or delays due to parts bent in shipment or handling. Rims are rolled from ***one-piece pressed steel.*** Patented Steel Cant Plates permit quick replacement or tightening of wood filler cants.

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Main Office and Works, Parkersburg, W. Va.

Sales Offices and Stocks Carried in Every Producing Field

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EASTERN STATES

PENNSYLVANIA

Company, Well and Location	Initial Production Bbls.	Depth
BRADFORD FIELD—		
South Penn Oil Co., Fee 51	4	....
Fee 52	2	....
Fee 53	3	....
Fee 54	3	....
M. E. Jones 240	2	....
M. E. Jones 241	2	....
M. E. Jones 242	2	....
Kendall 69	2	....
Melvin 207	2	....
Melvin 208	2	....
Davis 33	2	....
Bingham 408, tract 17	2	....
Bingham 439, tract 105	2	....
Bingham 494, tract 1	2	....
Bingham 570, tract 1	4	....
Bingham 88, tract 1	4	....
Blair 60	2	....
Hooker 25	2	....
Hooker 26	2	....
Hamlin 108	2	....
Bingham-Satterfield 128	2	....
Bingham 576, tract 19	2	....
Bingham 5	3	....
Melvin 209	2	....
E. Daly, Daly 4	3	....
T. H. Kennedy, Kennedy 6	3	....
Kennedy 7	3	....
E. F. Curtis & Co., South Penn 6	3	....
T. P. Thompson Jr., Thompson 21	2	....
Carson & Whitehead, Boyd 2	3	....
F. E. Baldwin, Baldwin 17	3	....
W. L. Wasson & Co., Borden 5	3	....
Davis Oil Co., Kuhn 5	4	....
Kuhn 6	3	....
G. C. Rice & Co., Westen 2	2	....
D. L. Moody, Moody 21	3	....
C. P. Byron Est., Bingham 538 tract, 1	2	....
J. A. Walters Est., Walters 17	3	....
W. T. Piper & Co., Piper 2	2	....
Kendall Ref. Co., Bishop 7	2	....
Penn Oil Pord. & Ref. Co., Fee 11	2	....
L. G. Schenfield, Werthman 3	3	....
L. M. Lilly & Co., Middaugh 13	2	....
H. N. Jack & Co., Jack 9	2	....
B. Devlin, B. Devlin 2	2	....
J. W. Bouton, Bouton 7	2	....
Hazlewood Oil Co., Hazlewood 1	2	....
No. 1 tract, 72	2	....
No. 23 tract, 104	2	....
D. W. Daly, Bingham 389 tract, 11	2	....
Forest Pet. Corp., Niles 154	2	....
S. H. Elder & Co., Elder 6	2	....
J. A. Hooper, Bingham 428 tr, 15	2	....
Elder & Hooper, Bingham 392 tr, 1	2	....
John Franks, Borden 2	2	....
C. E. Potter, Russell 3	2	....
BUTLER COUNTY—		
Smith & Swartzlander, Hoch 1	¶1¼	....
Frederick & Co., Beck Hrs. 1	¶1¼	....
Wheeler & Co., Harmon 1	2	....
Greenwood & Co., Hickey 3	*	....
C. Fennell & Co., Englehart 1	*	....
Donaldson & Co., Terwilliger 1	*	....
BEAVER COUNTY—		
Mellon & Co., M. McOwan 1	*	....
CLARION COUNTY—		
Sigworth Bros. & Co., McCauley 1	¶1	....
A. D. Shortz & Co., Kahle 7	¶1	....
Samuel Gribel, Gribel 7	*	....
CENTER-MIDDLE FIELD—		
L. Epstein Lot 436, tract 43	8	....
B. Hughes, Lot 397, tract 6	7	....
F. E. Keller, Foster 11	3	....
VENANGO COUNTY—		
T. McLaughlin, Keverline 4	¶½	....
Weekly & Halscel, Carter 3	2	....
Unknown, Porter 4	2	....
W. H. Hagerty, Hagerty 2	2	....
W. T. Zimmerman, Zimmerman 11	2	....
Hampton, Osborn & Co., Lamb 18	2	....

ILLINOIS

LAWRENCE COUNTY—		
Ohio Oil Co., Laura Jenners 20	25	1805
CRAWFORD COUNTY—		
L. C. McDowell & Co., J. F. Higgins 10	4	986

MICHIGAN

ST. CLAIR COUNTY—		
Diamond Salt Co., Fee 1	¶1¼	2768

WEST VIRGINIA

Company, Well and Location	Initial Production Bbls.	Depth
MARION COUNTY—		
Victor Tennant, Jesse Brooks 1	¶¼	....
Mack Bell Oil & Gas Co., W. L. Prickett 1	¶¼	....
CLAY COUNTY—		
Virginian Gasoline & Oil Co., Lockhart 15	5	....
RITCHIE COUNTY—		
A. L. Britton & Co., J. A. Hall 1	8	....
J. A. Bell 1	5	....
T. E. Pritchard, L. Pritchard 1	*	....
Clark Braden & Co., Joe Moore 1	¶½	....
Park Bowser, J. W. Grim 2	¶¼	....
C. S. Morris & Co., A. N. Tingler 1	¶½	....
ROANE COUNTY—		
Virginian Gaso. & Oil Co., Leo Boggs 1	25	....
United Fuel Gas Co., W. A. Geary 1	¶1½	....
Douglas Bros., Geary 1	¶1½	....
Producers O. & G. Co., David Harner 1	*	....
LINCOLN COUNTY—		
Columbia G. & E. Co., S. W. Oxley 1	¶½	....
L. R. Sweetland, Sweetland 24	¶½	....
MARSHALL COUNTY—		
Manufacturers L. & H. Co., J. B. Miller 1	¶1¼	....
D. M. Thorp 2	¶1½	....
MINGO COUNTY—		
Public Gas Corp., Henry Closterman 17	30	1410
LEWIS COUNTY—		
Hope Natural Gas Co., J. C. Starcher 1	¶1½	....
CABELL COUNTY—		
Ten Mil Oil & Gas Co., Ernest Mohr 2	¶1	....
CALHOUN COUNTY—		
Great Elk Oil Co., Sam Bachman 27	¶¾	....
JACKSON COUNTY—		
Helm Oil & Gas Co., L. D. Parsons 1	¶½	....

TENNESSEE

CLAY COUNTY—		
J. S. Aber, Arms 5	30	....
Arms 6	30	....
Clark, Bovard & Shirk, Tidewll Hrs. 1	25	452
Kraft, McDonald & Co., Thompson 1	20	514
Carnahan Oil Co., J. L. Murdock 1	20	180
Ohio Oil Co., Wm. Pennington 3	8	....
Burman & Co., Arch Short 1	10	1335
JACKSON COUNTY—		
Celina Oil Co., W. Rad Hawkins 9	30	....
DEKALB COUNTY—		
Medlin Oil Co., Unknown Tract 2	*	....
PICKETT COUNTY—		
Turner, Lewis & Co., B. C. Arney 1	*	....

SOUTHEASTERN OHIO

WASHINGTON COUNTY—		
Phil Bowersock, Bowersock 1	3	....

CENTRAL OHIO

ATHENS COUNTY— &		
Wehrle Interests, J. & J. E. Allen 1	3	....
C. P. Maxwell 2	2	....
J. H. Raushausen & Co., J. A. Gassels 3	5	....
Ohio State O. & G. Co., Ohio State Land 8	5	....
Watkins O. & G. Co., Mary A. Earhart 4	5	....
GUERNSEY COUNTY—		
Ohio Fuel Sup. Co., W. C. Coutr 7	40	....
Davis Bros. Co., Paul Micha 3	50	....
HOCKING COUNTY—		
Chartiers Oil Co., Hocking Prod. Co. 206	5	....
LICKING COUNTY—		
Arkansas Fuel Oil Co., E. C. Howell 3	3	....
FAIRFIELD COUNTY—		
John Alfred & Co., W. A. Alfred 1	¶¼	....
HOLMES COUNTY—		
East Ohio Gas Co., J. W. Moore 1	*	....
COSHOCTON COUNTY—		
East Ohio Gas Co., D. & M. Mohler 1	*	....
PERRY COUNTY—		
Bauman & Co., P. Hutchinson 1	*	....
MUSKINGUM COUNTY—		
Hunter-Athey Oil Co., F. M. Ashmore 1	*	3825

NEW YORK

Company, Well and Location	Initial Production Bbls.	Depth
ALLEGANY COUNTY—		
Forest Oil Corp., July 33	2	....
Howard & Phillips, Phillips 2	3	....
Perry & Root, Fee 1	2	....
A. C. A. Oil Corp., Fee 1	2	....
W. B. Davidson & Co., H. Case 1	2	....
Bovaird & Miller, Miller & Co. 5	2	....
Hazlewood Oil Co., No. 1, tract 68	2	....
J. C. Mindeler, Fee 3	2	....
C. M. Lippert & Co., Lippert 12	2	....
Robert J. Dermitt, Dermitt 5	2	....
Weatherby 1	2	....
Pure Penn Oil Co., Kinley 1	2	....
South Penn Oil Co., Chipmonk 1	2	....
Chipmonk 2	2	....
Mrs. H. S. Westran, McCaffrey & Co. 4	2	....
Cuba National Bank Co., Fee 23	2	....
N. V. V. Franchot, Harbel & Co. 5	2	....
L. V. Forness & Co., Forness 2	2	....
Breckenridge & Co., Fee 1	2	....

KENTUCKY

WARREN COUNTY—		
Thompson Oil Co., H. M. Bryant 8	2	1150
ALLEN COUNTY—		
E. E. Hume, Levi Hinton 4	*	312
CLAY COUNTY—		
Pet. Explo. Co., Crawford 1	¶1½	....
WAYNE COUNTY—		
John Dillon & Co., Forster Hrs. 1	*	....
OHIO COUNTY—		
Cumberland Pet. Co., R. Hamilton 2	200	....
Daugherty & Co., Hill Rhodes 4	150	756
James C. Ellis, Rousseau Weller 2	100	....
Creek Dr. Co., Bartlett Hrs. 3	35	....
Penn-Indiana Oil Co., W. Griffith 4	25	....
H. A. Henry, S. V. Flowers 5	20	....
S. H. Russell & Co., A. P. Kelly 3	20	445
Joe. Bellomy 1	*	....
Ohio Oil Co., W. T. Greer 1	*	....

NORTHWESTERN OHIO

ALLEN COUNTY—		
Carmen Oil Co., Martha J. Pewell 1	30	1421

INDIANA

HARRISON COUNTY—		
Louisville Gas & Elec. Co., Meade Glasgow 1	¶½	700
C. Bryant 1	*	750
DAVIESS COUNTY—		
Hartman, Sargent & Co., A. Veale 2	20	1318
SHELBY COUNTY—		
Freeport Gas Co., David 1	¶1½	910
PIKE COUNTY—		
J. Morrisey & Co., W. Miley 1	*	800
SULLIVAN COUNTY—		
Hackett, Clark & Co., Carruthers 2	*	....
MARTIN COUNTY—		
Raurk & Co., McConn 1	*	....

SOUTH LOUISIANA

EDGERLY—		
Plummer Oil Co., Lyons 1	*	3750

TEXAS

TEXAS GULF COAST

BATSON—		
Hill & Dowell, Millholme 95	*	1675
BLUE RIDGE—		
J. S. Abercrombie & Co., West-Schenck 2	*	3300
SPINDLE TOP—		
Sun Oil Co., McLean 6	*	5700
PIERCE JUNCTION—		
Shaw et al, Fitzsimmons 1	*	2310
Leonard Pet. Co., Marland Fee 1	65	4600

SOUTHWEST TEXAS

DALE FIELD—		
The Texas Co., Osteen 1	50	....
LAVACA COUNTY—		
M. L. Benedum, Russell 1	*	3275
LIVE OAK COUNTY—		
R. P. Lightfoot, Thomas 1, sur 963	*	1320
GONZALES COUNTY—		
Green & Shall, Dubose 1	*	3125
DUVAL COUNTY—		
Houston Oil Co., Benavides 2, Cole Field	¶30	1550

EAST TEXAS

HARRISON COUNTY—		
Ferguson et al, Abney 1, G. W. Martin sur	¶3	936
MARION COUNTY—		
William Gross, Baker 1, J. French sur	5	2391

There's Safety in Seamless Casing

THE successful completion of a well depends upon the exercise of carefulness and safety in every particular. A single slip on the part of a workman or the failure of any part of the equipment or materials may mean the loss of the hole.

It is the extra carefulness on the part of the workman that makes his work dependable, and it is the extra strength of Pittsburgh Seamless Casing that multiplies its safety compared with welded pipe. Actual tests show that Pittsburgh Seamless has one-third greater factor of safety. This is because it has no weld and is made of higher carbon, stronger steel. Every inch of weld in a welded tube is a point of potential failure.

Forged Steel Casing

Pittsburgh Seamless Casing in the larger sizes is made by the Pilger process which carries the same relative strength of smaller seamless casing into sizes up to 13⅜". Pipe made by this process has the fine, tough texture of forged steel because it is actually fashioned from a thick walled billet into finished pipe by severe hammering equivalent to the forging hammer.

Pittsburgh Seamless Casing is made in longer lengths than welded casing. It saves time and expense in the field. It is insurance against costly accidents and delays. Our booklet "Seamless Tubes for Oil Country Purposes" will be sent free upon request.

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DIVISION OF

Pittsburgh Steel Co.

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For over 20 years our entire resources have been focused on one objective—how to make a better seamless tube. Today our methods are the most up-to-date that engineers and scientists have developed. Due to this carefully concentrated attention to only one type of tubing, we have become the largest company in America devoted exclusively to its manufacture.

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Seamless Steel tubes are the modern standard for all tubular steel purposes.

Why not adopt Pittsburgh Seamless now and benefit by its greater safety and economy?

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TEXAS PANHANDLE

HUTCHINSON COUNTY—

Prairie O. & G. Co., Burnett 1	75	3051

WHEELER COUNTY—

L. E. Arnold et al, M. J. Williams 1	*	1780

NORTH TEXAS DISTRICT

ARCHER COUNTY—

L. T. Burns & Texas Co., Burns 1-B	40	1513
Consolidated & Simms Oil Co., Turbeville 4	*	1515
Gray Co. O. & G. Co., Estell 1	*	1605
Hines & Atlantic Oil Prod. Co., Neal 1	*	1253
Koll-Tex Oil Co., White 7	20	1450
Madden & Hunt, Hausler 1	*	1140
Panhandle Ref. Co. & Burton, Farmer 3-B	50	1513
Shappell Oil Co., Wilson 15-B	*	943

ELECTRA—

The Texas Co., Waggoner 337	80	1950
Waggoner 338	†	2177

JACK COUNTY—

Shaw-Rathke et al, Cullers 5	75	2003

K-M-A & IOWA PARK—

C. E. Birk et al, Dutton 1	*	1265
H. G. Lewis, et al, Chilson 1	*	200
Pet. Producers Co., Love 10-B	*	520

MONTAGUE COUNTY—

Archer Drilling Co., Fortune 1	*	1800
Bridwell-Heydrick Oil Co., Salmon 1	*	1806
Continental Oil Co., Edmondson 2	*	1984

SOUTH VERNON DISTRICT—

Pet. Producers Co., Waggoner 1-A	175	2405
Phillips Pet. Co., Waggoner 22-QQ	35	1918

YOUNG COUNTY—

Christie et al, Carter 2	*	1212
Clark et al, Howell 2	*	884
Conner et al, McCluskey 10	350	4282
Nash & Windfohr, Hinson 2	75	2210
Painter et al, Donnell 1	*	4202
Roberts Oil Corp., Stewart 1	*	904
Simms et al, Ragsland 1	*	2385
United Royalty Co., Wallace 1	*	3998

CENTRAL WEST TEXAS

BROWN COUNTY—

Cranfill-Reynolds & Sun Oil Co., Smith 19	20	1360
Pandem Oil Corp., Hutton 1	50	1132
Phillips Pet. Co., Newsome 9	150	1328

CALLAHAN COUNTY—

Nat'l Ref. Co., Moore 1	*	2115

COLEMAN COUNTY—

Magnolia, J. P. Morris 19	50	2253
Peer Oil Corp., Sealy-Smith 1	*	2507

EASTLAND COUNTY—

Eastland Oil Co., Wright 3-A	*	3580

SHACKELFORD COUNTY—

Hyde et al, Moberly 1	*	1330
Milham Corp., Sedwick 5	30	4350
Swallow et al, Reynolds 1	*	1250

STEPHENS COUNTY—

Clark et al, Riddle 2	135	1874

WEST TEXAS

CRANE COUNTY—

Simms Oil Co. & Atlantic Oil Prod. Co., University 12-D	250	2911

CROCKETT COUNTY—

C. A. Jones et al, Powell 1	85	2634

HOWARD COUNTY—

Magnolia, Mary Chalk 8	30	1655
Marland Oil Co., Clay 6-A	65	1837
Clay 7-A	55	1840

PECOS COUNTY—

Marland & McMan O. & G. Co., Yates 12	1920	1344
Yates 13	1320	1450
Yates 14	1440	1450
Mid-Kansas-Transcontinental, Yates 8-A	5000	1112
Roxana, Tippett 4	16,000	1420
The California Co., Yates 6	3100	1247
Yates 8	5600	1311

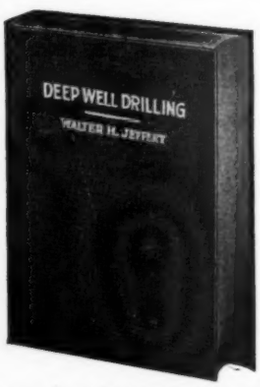
WINKLER COUNTY—

Humble, Hendricks 3-B	6500	3027
Landreth & Roxana, Hendricks 4-A	4100	2988
Magnolia, Hendricks 2	2000	2955
Murchison & Cranfill Bros., Grisham-Hunter 2-B	575	3050

Second Revised Edition

Deep Well Drilling

By WALTER H. JEFFERY



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A. C. Stewart Dies

Los Angeles.—Alfred C. Stewart, inventor and California pioneer, died at his home, 1215 Garfield, South Pasadena, December 19. Death was due to pneumonia which attacked him suddenly five days before the end came.

Mr. Stewart, who was 53 years of age, was the younger son of Lyman Stewart, late "Father of Western Petroleum," and came to California in 1883, the year his father began operations which led to the founding of the Union Oil Company. His brother, W. L. Stewart, now is president of this company, control of which has been in the hands of the Stewart family since it was formed.

Besides the brother, Mr. Stewart leaves his widow, Mrs. Edna Stewart; a sister, Mrs. D. H. Martin of Pasadena, and two sons, Clement Harding and Richard Irwin Stewart.

Mr. Stewart contributed much to automotive science, his best-known inventions being the Stewart carburetor, although he was the creator of many other devices now in common use on motor cars.

He built one of the first racing cars ever used, and maintained a factory in Los Angeles until 15 years ago, when his interests were sold to eastern investors. Since then he has had a laboratory and shop here, continuing his work on inventions until the day before his fatal illness.

Californians Celebrate

Los Angeles.—The annual Christmas Jinks of the Chamber of Mines and Oil was held at noon December 23 at the Ambassador hotel and was attended by several hundred oil men from all over the State. The program consisted of humorous numbers throughout. The Wildcats, entertainment committee of the organization, presented the playlet, "So's Your Oil Man," with all the frills and thrills that made it famous at the recent meeting of the American Petroleum Institute at Chicago.

Potrero

Los Angeles.—The condition of the Associated Oil Company's Cypress 1, the discovery well in the Potrero field, is such that it is believed that it may never be completed in a satisfactory manner. Another effort has been made to shut off the water below the 4¾-inch casing, which was originally cemented at 5276 feet. It is known that the Associated is planning another test several hundred feet southwest of the discovery well, adding weight to the belief that the company has some doubts as to the successful completion of Cypress 1, which has already proved the existence of at least a small oil field.

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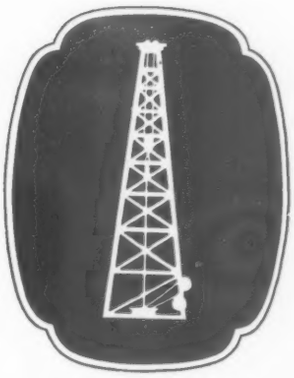

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PERMITS GRANTED FOR NEW WELLS

WEEKLY COMPARISON OF NEW WELLS

Following is a condensed table giving a comparison of permits or locations made for new wells during the past year in Kansas, Oklahoma, Arkansas, Louisiana, Texas, California and the Mountain States:

	Week ending Dec. 24	Previous week	Total this month	Total this year	This week last year	This month 1926	Total same date 1926	Year total 1926
Arkansas	3	2	20	325	9	38	1,046	1,046
California	30	35	131	1,201	21	96	1,389	1,389
Louisiana	11	15	64	805	18	81	1,463	1,463
Kansas	15	20	75	944	22	101	1,905	1,905
Oklahoma	42	57	225	3,632	86	341	5,584	5,584
Texas	103	128	565	8,560	230	834	12,978	12,978
Mountain States	9	..	9	440	31	66	*794	*794
Totals	213	257	1,090	15,909	417	1,557	25,159	25,159

*First four months of 1926 not included.

MOUNTAIN STATES

WYOMING

PARK COUNTY—Jacob M. Baston, Walch 1, nw nw 10-50n-100w.

TETON COUNTY—Ora L. Hiatt 1, ne nw 30-43s-114w.

COLORADO

LAS ANIMAS COUNTY—Phillips Pet. Co., 1, ne 23-29s-56w.

MOFFAT COUNTY — Midwest Ref. Co., 8SD, Lot 5, nw 23-4n-92w.

MONTANA

CARTER COUNTY—Bull Dog Oil Co., 3, sw sw 12-5n-60e.

NEW MEXICO

McKINLEY—S. Dysart 2, ne ne 26-18n-11w.

SAN JUAN—A. Johnso, Trustee 1, s½ sw 34-29n-11w.

SIERRA—New Mexico Royalty Co., 3, se se 20-14n-9w.

TORRANCE—Duran Dome 1, sw ne 31-3n-15e.

OKLAHOMA

CARTER COUNTY—Wirt Franklin Pet. Corp., Bumpass 2, nw sw se, 33-1s-3w. Humble, Spears 3, sw ne nw, 29-1s-5w. Schermerhorn et al, Crockett 1, ne nw sw, 23-1s-3w.

CREEK COUNTY —Transcontinental, Freeman 4, sw c se sw, 14-17-8e.

GRADY COUNTY—Galton Camp Soloman 1, swc 25-4n-8w. H. A. Milleur et al, Milluer 1A, cwl e½ se se, 23-4n-8w. Carter, McCaughtry 1, nec se nw, 26-5n-8w.

KAY COUNTY—Wentz Oil Corp., Blackwell Country Club, se sw sw, 20-27-1w. Marland, Dickerson 3A, cel w½ nw se, 17-29-1e.

LOGAN COUNTY—Roxana, McCulley 2, se c, 30-19-4w. Wirt Franklin, Knecht 1, nw c, 21-18-4w.

MUSKOGEE COUNTY—J. A. Evans et al, Thompson 1, sw c nw sw, 2-14-19e.

OKMULGEE COUNTY—W. B. Pine, A. Byrd 4, cel w½ e½ se, 27-14-13e. E. P. Jones et al, Jones 2, c sw ne, 14-14-13e. W. F. Epler, Graham 1, sw c ne ne , 22-15-11e.

OSAGE COUNTY—Okla. Nat. Gas Co. 779, nec sw sw ne, 33-21-12e. Kewanee Oil & Gas Co. 12, ne sw nw, 34-27-6e; 11, sw se nw, 34-27-6e. Prairie Oil & Gas Co., 1, sw nw nw, 21-27-6e; 1, nec, 10-26-6e; 2; se ne ne, 10-26-6e.

PAWNEE COUNTY—Privett Drilling Co., Houston 1, swc se ne, 10-20-6e.

PONTOTOC COUNTY—La Salle et al, Copeland 3, nec sw, 28-5n-5e.

POTTAWATOMIE COUNTY—M. T. Smith et al, Billington 1, nec nw ne, 22-7n-6e. Magnolia, Shipman 1, sw nw ne, 19-7-4e. Continental, Phillips 4, nw ne sw, 19-7n-4e. Magnolia, J. M. Robbins 2, sec sw se, 15-7-4e. Independent & Darby, Standbridge 3, se nw sw, 14-7-4e.

SEMINOLE COUNTY—Texas Co., Reed 1, ne nw ne, 24-6-7. Roxana, Micco 1, swc, 32-8-7e. Pure, Strothers "F" 4, se ne nw, 10-8-6e. Roxana et al, Maines 1, ne nw sw, 7-8-6e. T. Atkins, Grayson 1, sec sw, 9-9-8e. Mid-Kansas, Wilkins 3, sw nw ne, 25-9-6e.

STEPHENS COUNTY—Owen & Wood, Massey 8, sec sw se nw, 12-2s-8w. Geo. Pace et al, Allen 1, cnl nw ne, 3-2s-8w. Empire, Cantrill 9, cwl e½ se se, 32-1s-8w. Clark & Cowden, Davidson 1, ne nw sw, 13-1s-4w.

TULSA COUNTY—Burk-Gibbs Oil Co., Scott 1, nwc ne ne, 17-16-14e. Savoy Oil Co., Scott 2, nec se ne sw, 8-16-14e. Glidden Oil Corp., Combs 1, sw c nw se new, 23-19-11e; Jones 1, c ne ne, 15-19-11e.

KANSAS

BARBER COUNTY—Barton Oil Co., Blunk 1, cne nw, 20-34-13w.

BUTLER COUNTY—Basom et al Tavender "A" 1, nec se ne 26-28-6e.

COWLEY COUNTY—Derby, Seaman 1, nec se ne, 32-30-3e. Trees Oil Co., King 1, swc se ne 14-31-4e. Skelly, Saunders 1, nec nw ne, 31-31-6e.

GREENWOOD COUNTY—Empire, Ott 2 "C", nec nw ne, 26-22-12e. Bisagno et al, Roglin 2, nwc se sw, 10-25-13e. Valley Osage Oil Co. Roglin 2, nwc sw se, 10-25-13e.

MORRIS COUNTY—Skelton et al, Illes 1, nwc 25-16-5e.

SUMNER COUNTY—Edenfield et al 1, out lot 10, City of Oxford, 14-32-2e. Roxana Pet. Corp., Emerich 6, nec nw nw se, 14-32-2e; Emerich 7, cnl nw se, 14-32-2e; Emerich 8, swc se, 14-32-3e; Nevitt 3, tract 3, City of Oxford, 14-32-2e. McNabb & Bess, Veail 1, nec se, 22-32-2e. Harris & Haun, Tamsh 1, c se sw 14-34-2e.

LOUISIANA

CADDO PARISH—J. L. Ferguson, Waskom, Texas, Abney 3, 7-17n-16w, 2016 ft s and 324 ft e of nw c.

CALCASIEU PARISH — Gulf, Houston, Lutcher & Moore 8, 19-9s-12w, approx 955 ft n and 100 ft e of center.

IBERIA PARISH—Jefferson O. & Dev. Co., New Orleans, Jeff Island Salt Co. 2, 59-12s-5e, 3822 ft e of nw c sec 59, thence n 213 ft to stake in sec 59.

OUACHITA PARISH—J. M. Huber, Swartz, Edwards 4, 1-18n-4e, 2582 ft e and 656 ft n of sw c.

RICHLAND PARISH — F. M. Fuller, Shreveport, Boise 1, 33-16n-6e, 660 ft s and 330 ft e of nw c. Moody & Seagraves, Shreveport, McDonald 1, 9-15n-5e, 1918 ft e and 1634 ft n of sw c. Oliver & Masters, Shreveport, Richard Hatch 2, 2-15n-5e, 50 ft s and 150 ft e of now c. United Carbon Co., Monroe, Mulhern 1, 20-16n-6e, 660 ft n and 610 ft w of se c.

WEBSTER PARISH—Magnolia, Shreveport, Camp 1, 36-23n-10w, 660 ft s and 660 ft e of nw c. Magnolia Petroleum Co., Shreveport, Mixon 1, 22-21n-10w, 660 ft s and 760 ft e of nw c. Magnolia, Shreveport, Munn 1, 36-23n-10w, 660 ft n and 660 ft w of se c sw.

ARKANSAS

UNION COUNTY—C. Hallison, Fitzgerald 10, 17-18-15, center of w l of ne nw. Lion O. & R. Co., Leverette 1, 11-16-16, se c se ne. Magna Prod. Co., Townsend 1, 10-17-14, 200 ft n and 200 ft w of se c nw ne.

CALIFORNIA

COYOTE HILLS—Holly Dev. Co., Lehmer 1, 20-3-9.

HUNTINGTON BEACH—Pacific Coast Oil Co., Lippencall 1, 10-6-11. Duncan & Lea Pet. Corp., No. 3, 10-6-11. Standard, Huntington B-60, 4-6-11. Ben F. Munn, Munn 6, 10-6-11; Munn 8, 10-6-11; Munn 9, 10-6-11.

KERN COUNTY—Salegna Investment Co., 1, 9-11-24. Shell Co., Jewett 1, 29-28-29.

KERN FRONT—Calif. Pet. Corp., Lehmann 3, 23-28-27. George F. Getty, Lightner 1, 26-28-27; Grady 7, 26-28-27. Standard Oil Co., 15, 27-28-27.

LONG BEACH—Universal Cons. Oil Co., Graham 1, 29-4-12. Bellview Oil Synd., 1, 29-4-12. Herndon Pet Corp., Herndon 5, 29-4-12. J. E. O'Donnell, O'Donnell 63, 29-4-12; O'Donnell 64, 29-4-12; O'Donnell 65, 29-4-12. Signal Synd., 7, 19-4-12. L. T. Edwards, Bradley 1, 28-4-12. The State Oil Co., 1, 30-4-12.

MIDWAY—Standard Oil Co., 92, 19-31-24.

SAN DIEGO COUNTY—Mills Oil Co., Pueblo lot 1316.

TORRANCE—Chanslor-Canfield Midway Oil Co., Torrance 91, 10-4-14.

VENTURA—Associated Oil Co., V. L. W. 3, 23-3-23. M. K. T Oil Co., Foster 1, 28-3-23. Chanslor-Canfield Midway Oil Co., Hobson C-3, 17-3-24.

WHEELER RIDGE—Standard, Kern County 2, 27-11-20.

TEXAS

ARCHER COUNTY — Panhandle Ref. Co., Wichita Falls, Porter 1, A. Balle sur, 150 ft from n and 1104 ft from w line; Garvey 1, 1865, TF&L sur, 1407 ft from n and 1725 ft from w line. Mrs. H. P. Wallace, Wichita Falls, Kemp & Kempner 29, No. 2, S. P. Ry sur, 300 ft nw of 28. L. T. Burns, Wichita Falls, Fee 2B, blk 17, J. W. Harris sur, 150 ft from n and e lines.

AUSTIN COUNTY—Humble, Houston, Stavoski 1, T. Bell sur, 500 ft from s and e lines.

BROWN COUNTY—Phillips Pet. Co., Bartlesville, Okla., Newsom 11, S 4, SA&MG sur, 150 ft from s and w lines. Selby O. & G. Co., Tulsa, Okla., Ellis 24, S 3, SA&MG sur, 150 ft from s and e lines. E. H. Caldwell et al, Brownwood, Fee 1, blk 15, K. C. S. L. sur, 972 ft from e and 1090 ft from s line.

BURNET COUNTY — Reynolds Land & Leasing Assn., San Antonio, Heine 2, No. 119, BBB&C sur, center.

BLANCO COUNTY — R. A. Rodson, San Antonio, Glasscock 1, s 50, W. W. McDonald sur, 859 ft from w and 1156 ft from n line.

CALLAHAN COUNTY—E. W. Ames, Cisco, Wagley B1, J. B. Teague sur, 150 ft from e and 450 ft from s line. Godley O&G Co., Dallas, Kennedy 12, S 8, Bayland Asy. sur, 450 ft from n and e lines; 13, 150 ft from e and 210 ft from s line; 14, 300 ft w of 13; 15, 300 ft w of 14; 16, 300 ft w of 12. Acers & Mee, Abilene, Williams 3, S 3, T&NO sur, 1400 ft from w and 300 ft from n line.

COLEMAN COUNTY—A. R. Forster, Coleman, Davenport 1, blk 250, W. T. Dunlavy sur, 325 ft from s and e lines. O. H. Shoup, Jr., Colorado Springs, Colo., Chambers 1, blk 63, H. Starnes sur, 1980 ft from n and 800 ft from e line.

COLORADO COUNTY—C. A. Milentz, Columbus, Auerbach 1, D. Gilleland sur, center.

CHEROKEE COUNTY — Lloyd Thomas, Holdenville, Okla., Bond-DeLeach 1, P. Reese sur, 3057 ft from n and 2225 ft from e line.

CALDWELL COUNTY — Joseph Bruner,

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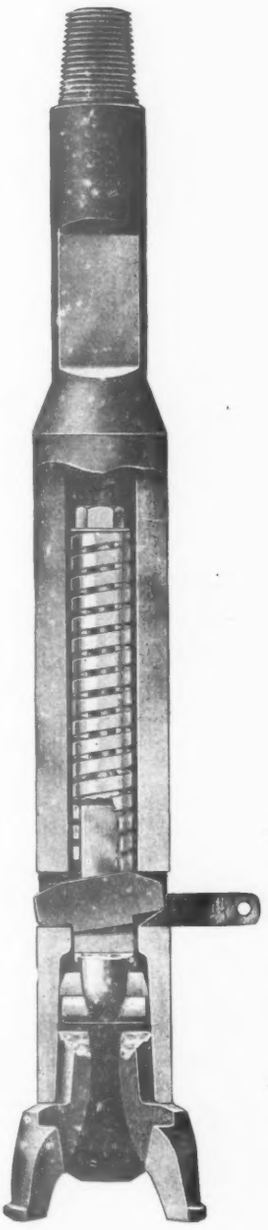

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Luling, Wilson 1, A. Floyd sur, 2320 ft from e and 200 ft from s line.

COOKE COUNTY — Carey Drilling Co., Wichita Falls, Walterscheid 2, blk 73, Muenster sur, 305 ft e of 1. A. V. Grant, Wichita Falls, Dennis 1, J. S. Stump sur, 150 ft from n and e lines.

DALLAS COUNTY—J. B. Alford, Dallas, McCoy 1, J. Jackson sur, 708 ft from e and 681 ft from s line.

DUVAL COUNTY—M. E. Trussel, Laredo, Moody 1, S 60, 150 ft from n and w lines.

EASTLAND COUNTY—Chestnut & Smith, Eastland, Griggs 2, blk 3, A. Miller sur, 330 ft from e and 1287 ft from s line. Phillips Pet. Co., Bartlesville, Okla., Pence 1, 2981, TE&L sur, 330 ft from n and w lines. Mook-Texas Oil Co., Fort Worth, Casey B2, W. Van Norman sur, 1000 ft from and 75 ft from s line.

FORT BEND COUNTY—Gulf Prod. Co., Houston, Wolf 7, No. 68, H&TC sur, 750 ft from sw and 1175 ft from nw line; Trone 6, No. 67, H&TC sur, 500 ft sw of 2.

FAYETTE COUNTY—Williams & Phalon, La Grange, Cervenka 1, blk 97, F. C. S. L. sur, 150 ft from e and 450 ft from s line.

GRAY COUNTY—Phillips Pet. Co., Bartlesville, Okla., Riley 3, S 88, blk B2, H&GN sur, 315 ft from s and w lines. John 1, S 87, blk 3, I&GN sur.

GLASSCOCK COUNTY—Magnolia, Dallas, Roberts 1, S 29, blk 156, W&NW sur, 330 ft from n and e lines.

HUTCHINSON COUNTY — Phillips Pet. Co., Bartlesville, Okla., Ellis 1, S 2, blk Y, M&C sur, 330 ft from s and w lines.

HOWARD COUNTY — Schermerhorn Oil Co., Tulsa, Okla., Roberts 1, S 137, blk 29, W&NW sur, 330 ft from s and w lines.

HARRISON COUNTY—Tylong O&G Co., Shreveport, La., Vaughn 3, W. R. Anderson sur, 272 ft from n and 174 ft from w line

JACK COUNTY—Thomas & Dixon, Killen 1, W. C. S. L. sur, 450 ft from w and 150 ft from s line. C. W. Bland, Jacksboro, Millett 1, J. W. Williams sur; Millett 2, J. W. Williams sur, nw corner; 3, s of 2; 4, 150 ft s of 2; 4, 150 ft from e and 450 ft from s line; 5, 150 ft from e and 450 ft from s line; 7, 450 ft from n and 150 ft from e line 8, 150 ft from n and e lines 9, 150 ft from s and e lines; 10, 150 ft from s and w lines. Amerada Pet. Corp., Cisco, Texas, Fry 2, Putnam & Anderson sur, 2000 ft from s and 1250 ft from se line. O. F. Whitaker, Jacksboro, Roach 2, W. Berryman sur, 300 ft n of 1. Measure & Random, Weatherfield, Measure 2, J. Holderman sur, 1000 ft from n and 1125 ft from w line. F. P. Zoch, Fort Worth, Cherryhouse 1, J. Irwin sur, 1320 ft from s and e lines.

JEFFERSON COUNTY — Yount-Lee Oil Co., Beaumont, Gladys 51, blk 98, J. A. Veatch sur, 105 ft from e and 218 ft from s line.

JASPER COUNTY—Great Lakes Oil Synd., Beaumont, Boykin 1, BBB&C sur, s central.

LAMB COUNTY—Talbot & Simms, Plainview, Andrews 1, No. 643, Capitol Lge.

MONTAGUE COUNTY—H. E. Crenshaw, Sherman, Shockley 1, W. H. Oxier sur, 1500 ft from n and 200 ft from w line. J. I. Lesh et al, Nocona, Maddox 4, blk 14, H. S. Arnold sur, 300 ft e of 2.

NAVARRO COUNTY — De Arman Bros., Corsicana, Murphy 1, J. Taylor sur, 450 ft from ne and 2053 ft from se line.

PECOS COUNTY — Vacuum Oil Co., San Angelo, Elsinore 1, S 60, blk D, GC&SF sur, 300 ft from n and 1200 ft from e line. Gulf Prod. Co., Fort Worth, Yates 4, R. C. S. L. sur, 200 ft from w and 719 ft from s line; 5, 200 ft from s and w lines; 6, 330 ft n of center of s line; 7, 2543 ft e of 6. California Co., Colorado, Yates 9, S 34, blk 194, GC&SF sur, 136 ft ne of 7; 10, 542 ft w of 9.

PANOLA COUNTY—Harry Hines, Wichita Falls, Jones 1, G. Goodwin sur, 150 ft e of center of w line. Magnolia Pet. Co. Co., Dallas, Baker 3, B. Jordan sur, 660 ft s of 2.

REEVES COUNTY — Vacuum Oil Co., Houston, Grisham-Hunter 1, S 46, blk 55, School sur, 150 ft from e and 2640 ft from s line.

RUNNELS COUNTY — Vacuum Oil Co., Houston, McMillan 2, blk 22, No. 532, D. Diaz sur, 500 ft s of 1.

SHACKELFORD COUNTY—Holliday Lease & Drilling Pool, Fort Worth, Broyles 1, S 7, L. A. L. sur, 150 ft from n and e lines. Home O&G Co., Albany, Leschber 6, 536, TE&L sur, 450 ft from sw and 1398 ft from se line. T. G. Shaw, Fort Worth, Edgar 21, S 20, Bayland Asy sur, 300 ft n of 16. G. C. Byrd, Albany, Rice 2, S 44, Bayland Asy. sur, 150 ft from nw and 450 ft from ne line.

STEPHENS COUNTY — Phillips Pet. Co., Bartlesville, Okla., Post 2, S 39, blk 6, T&P sur, 648 ft from n and 667 ft from e line. Teci Prod. Co., Breckenridge, Ball 1, 1217, TE&L sur, 330 ft from n and 200 ft from e line. Mook-Texas Oil Co., Fort Worth, Riddel 5, S 46, blk 6, T&P sur, 150 ft from n and e lines.

WICHITA COUNTY — Shappel Oil Co., Wichita Falls, Kemp & Kempner 11, blk 19, W. V. F. L. sur, 150 ft from w and 200 ft from n line. C. J. Thurber, Iowa Park, Zink, 7, blk 25, Cowherd sur, 300 ft w of 6.

WINKLER COUNTY—Independent O&G Co., Fort Worth, Vardeman 2, S 41, blk B5, School sur, 330 ft from s and w lines; Hendricks 7A, S 34, 330 ft from w and 660 ft from s line; 6A, 330 ft from s and w lines; 5A, 330 ft from s and e lines; 8A, 660 ft from n and 330 ft from w line. Magnolia, Dallas, Hendricks 6, S 29, blk B5, School sur, 330 ft from n and e lines. Roxana, South Bend, Hendricks B2, S 29, blk B5, School sur, 330 ft from n and w lines; Hendricks S 3, S 29, 330 ft from n and 990 ft from e line; C 4, 330 ft from n and 990 ft from w line; C5, 660 ft w of 4; C 2, 330 ft from s and e lines; Hendricks D2, 330 ft from s and e lines; Hendricks D2, S 41, 330 ft from n and w lines. Cranfill & Reynolds, Cisco, Hendricks C1, S 33, blk 26, School sur, 330 ft from s and w lines. Humble O&R Co., Wichita Falls, Hendrick 5B, S 34, blk B5, School sur, 330 ft from s and w lines.

WEBB COUNTY—M. E. Trussel, Laredo, Benavides 1, S 2272, blk 2, 150 ft from n and 200 ft from e line.

WILBARGER COUNTY — Pet. Prod. Co., Wichita Falls, Waggoner A 2, S 16, blk 4, H&TC sur, 580 ft from s and 137 ft from e line.

WASHINGTON COUNTY — West Prod. Co., Houston, Pomycal 1, S. M. Williams sur, 400 ft from nw and 655 ft from w line.

WARD COUNTY—Selby O&G Co., Tulsa, Okla., Rogers 1, S 85, blk F, G&MM sur, 78 ft from s and w lines.

WHARTON COUNTY—Geo. Hyde, Houston, Kellar 1, S. F. Austin sur, 50 ft from ne and 300 ft from se lines. Weed-Gayle Oil Co., Beaumont, Bay 9, S. F. Austin sur, 65 ft from nw and 705 ft from ne line.

YOUNG COUNTY—Godley O&G Co., Dallas, Graham 2A, S. Tankersley sur, 150 ft from s and 485 ft from e line. C. J. Kleiner, Cisco, Laughton 1, 1490, TE&L sur, 1830 ft from s and 150 ft from e line. G. R. Pauls, Graham, Morrison 7, E. Sherrill sur, 350 ft from n and 200 ft from w lines. Forbes & Mann, Graham, Martin-Kramer 1, B. Hill sur, 150 ft from n and w lines. D. L. Wolf, Olney, Lows 1, 59, TE&L sur, 150 ft from w and 450 ft from s line.

Moffat Dome

Denver, Colo. — Texas Production Company reported a total depth of 4423 feet in its No. 10 Knowlton test on Moffat Dome in northwestern Colorado. Test is supposed to be in the Sundance. It is considered a very important operation as the Iles Dome structure, about four miles from Moffat Dome, has a number of producing wells from the Sundance sand.

Casper, Wyo.—California Company, subsidiary of the Standard Oil Company of California, will test the Sundance formation in Southwestern Wyoming. This company is drilling a test well in the Snyder Basin structure north of the LaBarge field, but has selected the Scully Gap structure, south of Kemmerer, for its Sundance test. Drilling will begin early in the spring.

P. & R. Leaves Denver

Casper, Wyo. — Announcement was made here this week of the Producers & Refiners Corporation's intention to open land offices in Tulsa, and it is reported that the company will become active in the Mid-Continent and West Texas areas. The company will probably have its land offices in conjunction with those of the Prairie Oil & Gas Company. T. A. Bryan of Denver will be in charge, it is thought, as he is now at the head of the company's land department in the Rocky Mountain region. All of the company employes in the Denver office will be moved to Independence, Kansas, where the company's headquarters will be in the future.

Test Assures Line

Kemmerer, Wyo. — Results of the test being conducted by Utah Oil Refining Company and Midwest Refining Company, of the production of the LeBarge field, are showing that the present capacity of the field will be about 2000 barrels. This will insure the laying of a 45-mile pipe line from the field to railhead at Opal. The line will be of four-inch pipe and will be started early in the spring.

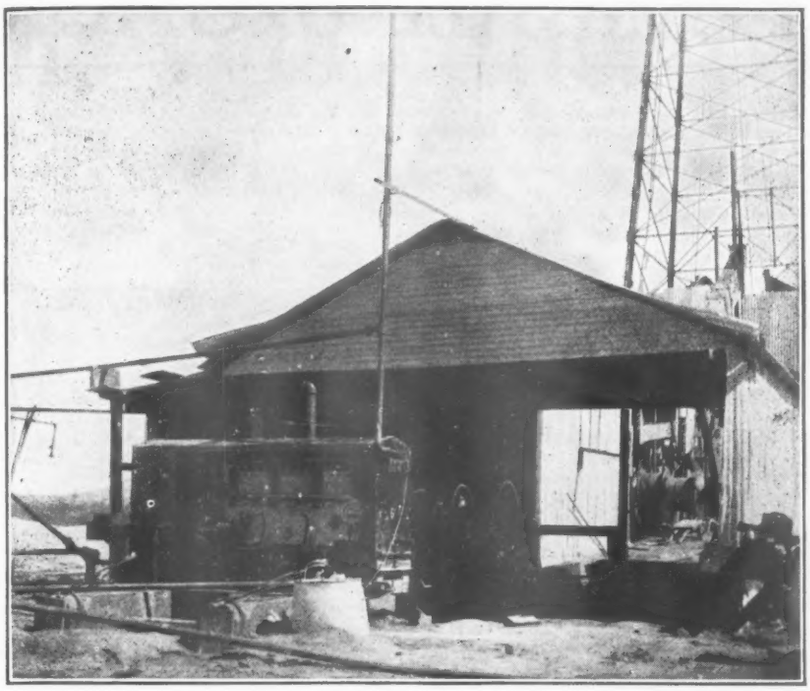
There are now 14 oil tank trucks running between the field and the loading terminal at Opal for delivery by rail to Utah Oil Refining Company at Salt Lake City. A new truck was added to the fleet last week, and it will increase the shipments by some 100 barrels per day.

Contract for Crude

Thermopolis, Wyo.—The Walden interests, according to recent report, have contracted for a supply of crude petroleum from the Osage field in Eastern Wyoming and also from the Torchlight field east of Basin in addition to the Shaffer crude at Warm Springs for refining at the old Alliance Oil & Refining Company plant at Thermopolis. The plant is almost completely overhauled and is connected to the field by a four-inch pipe line nine miles in length.

Show Near Escondido

Escondido, Calif.—Slight showings of gas and oil have been encountered by Stanley S. Turner in his test near this city. The formation is very hard, but is not granite, according to members of the syndicate, who emphatically deny that the Escondido valley is underlaid with unbroken layers of granite. It is admitted, however, that the sand is extremely hard, and that it is possible to make only a few feet of hole per day. The well is being drilled with cable tools and the latest model machinery, which consists of a Waukesha gasoline engine and portable Star outfit.



Pulling Tools at the Rate of 350 Feet Per Minute

The Magnolia Petroleum Company at Chalk No. 1 well, southeast of Big Springs in Howard County, Texas, pulled the entire string of tools from a depth of 575 feet in less than 1½ minutes. That is clearing the hole of tools at the rate of 350 feet per minute. The bandwheel speed was 30% faster than the bandwheel speed obtainable from the average steam engine. Yet it was only a few per cent greater than that usually obtained under normal operations from a Climax 6-cylinder engine. Climax high-speed drilling units can give you the kind of speed that increases your drilling capacity per tower—the kind that can give you a greater margin of profit per hole. We have a wealth of information on high-speed gasoline engine drilling—write us.

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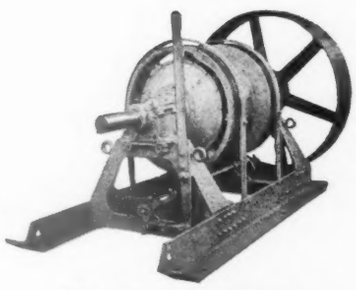

This is the new Climax Reverse Clutch built especially for handling the steady flow of power from the Climax "Paymaster" 6-cylinder engine. It has five distinct operating motions all controlled by one simple lever. It is light in weight as is the Climax 6-cylinder engine, and it's equally easy to move.

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WILDCATS FROM ALL SECTIONS

LOUISIANA

Completions

Company, Well and Location		Initial Production Bbls.	Depth
BOSSIER PARISH—			
Autrey Oil Co., Snyder 3, 22-19-11	*		424
CADDO PARISH—			
Arkansas Fuel Oil Co., Lane 2, 13-21-15	*		3742
Ohio Oil Co., Plum 1, 32-23-16	*		1619
MOREHOUSE PARISH—			
Texas Co., Sivley 1, 22-20-6e	*		3820

BIENVILLE PARISH—E. J. Forrest's Perritt 1, 11-17-6, r 2520 ft. Lake Bistineau Gas Co.'s State 1, 16-16-10, set 6-inch at 2525 ft. Louisiana Pet. Co.'s Hayes 1, 18-16-5, r 2450 ft.

BOSSIER PARISH — Arkansas Nat. Gas Co.'s Barnett 1, 17-23-12, dr 1920 ft. Autrey Oil Co.'s Snyder 4, 22-19-11, set 10-inch at 40 ft. Belchic & Lackey's G. W. Roberson 1, 22-23-12, set 6-inch at 3078 ft. R. L. Crook's Larkin 9, 14-19-11, lcn. Doern et al's Bollinger 1, 9-22-11, coring 3275 tf. C. F. Davis' Simpson 4, 14-16-12, set 10-inch at 116 ft. H. S. Goodwin Tr.'s Curtis 1, 2-16-13, flowing 2585 ft, (corrected depth). Hamiter et al's Hamiter 1, 10-23-13, sd 480 ft. Humble's B. & W. 30, 15-19-11, dr 4798 ft. J. S. McCullough's Hodges 5, 25-16-12, set 10-inch 105 ft. Magnolia's G. W. Roberson 1, 26-23-12, arr to set 8⅛-inch at 3057 ft. O'Brien Bros.' Farrington 1, 21-23-12, set 12-inch at 405 ft. Palmer Corp.'s Burke 1, 26-17-12, set 8-inch 1678 ft. R. O. Roy's Werner 1, 7-17-11, dk. Walker et al's Antrim 1, 28-23-12, coring 2632 ft. Woodley & Collin's L. & A. 3, 15-23-12, coring 3107 ft.

CADDO PARISH—Arkansas Nat. Gas Co.'s Alexander 1, 20-16-15, dr 135 ft; Lane 1, 13-21-15, dr stem stuck 4090 ft. Bee Oil Co.'s Muslow 1, 29-20-15, set 10-inch at 110 ft. Bussa & McGoldrick's Bickham 7, 28-21-15, wosr 1603 ft. J. W. Burton Tr.'s Caldwell 8, 18-21-15, dk. Belchic & Laskey's Boyton et al 1, 11-18-16, set 10-inch at 102 ft. W. D. Chew's Fee 7, 23-21-16, wosr 1868 ft; State 6, 34-21-16, dk. Dixie Oil Co.'s C. M. L. 9, 23-21-15, swabbing 3909 ft; Clark 9, 14-21-15, cementing casing 3690 ft; Robertshaw 90, 14-21-15, dr 3766 ft; Robertshaw 91, 14-21-15, dk; Robertshaw 92, 13-21-15, set 10-inch 2368 ft; Huckaby 1, 33-22-15, set 10-inch 80 ft; Huckaby 4, 11-21-15, coring 3628 ft. Ferguson et al's Abney 2, 7-17-16, set 10-inch 100 ft. Gulf Ref. Co.'s Herndon 10, 15-21-15, wsor 3921 ft; Tyson 14, 14-21-15, set 12½-inch with packer 3939 ft. Greenwood Pro. Co.'s Cooper & Ellerbe 1, 15-18-14, tested dry 1984 ft; Alexander 1, 27-18-16, set 10-inch 105 ft. Hayes Bros.' Spell 1, 15-21-15, tested sw 3911 ft; Spell 2, 15-21-15, sd 3092 ft. Magnolia's Bell 2, 6-17-16, dk; J. W. Furrh 1, 28-18-16, sd 1998 ft; J. Furrh 1, 32-18-16, coring 2580 ft; Dillon 18, 24-21-15, dk; Dillon 21, 23-21-15, lcn; Robertshaw 21, 23-21-15, bailing 3928 ft; Robertshaw 22, 23-21-15, cemented cavity 2304 ft; Hampton A-8, 15-21-15, dr 3576 ft. Ohio Oil Co.'s Smith 25, 12-21-15, dr 5585 ft; Thompson 1, 32-23-16, sd 3197 ft. Palmer Corp.'s Sellington 1, 17-21-14, arr to set 4½-inch at 4395 ft. Pittsburgh O. & D. Co.'s Herndon 1, 15-21-15, arr to deepen 3946 ft. Rogers & Jensen's Newton Smith 1, 22-20-16, set 10-inch at 100 ft. Shreveport Oil Corp.'s Muslow 2, 32-231-15, lcn; State 1, 23-21-16, dk; State 2, 27-21-15, sd 2400 ft. Simplex Oil Co.'s Thomas et al's 3, 15-20-15, wosr 2355 ft; Thomas et al 4, 15-20-15, 2208 ft; Hunsicker 1, 15-20-15, bailing 2215 ft. Standard Oil Co.'s Stiles 190, 27-21-16, sd 1948 ft; Stiles 191, 27-21-16, dk; Hart 16, 34-21-16, set 6-inch at 1790 ft. Superior Oil Co.'s Youree 8, 26-20-15, set 10-inch 60 ft. Standish Oil Co.'s Jolly 1, 22-22-15, cemented caviity at 1048 ft. The Texas Co.'s C. M. L. 47, 23-21-15, sd 3657 ft; C. M. L. 50, 23-21-15, setting 4½-inch 3852 ft; C. M. L. 51, 23-21-15, arr to set line 2942 ft; Mabry 10, 15-21-15, arr to blow with air 3930 ft; Herndon 9, 14-21-15, set 15½-inch 202 ft; Herold 10, 14-21-15, arr to set 6-inch 3925 ft; Raines 19, 15-21-15, dr 4107 ft; Noel B-13, 14-21-15, arr to deepen 3815 ft; Tubbs et al's Hines 1, 16-14-16 arr to set 6-inch 2268 ft. Woodley Pet. Co.'s Knight B-5, 38-15-12, set 10-inch 105 ft. Woodley & Collins' McVey A-1, 23-19-14, set 6⅝-inch 2525 ft. Waterman Brick & Tile Co.'s Fee 1, 18-17-16, tested sw at 940 ft.

CALDWELL PARISH—Grayson Oil Co.'s Crockett 1, 6-12-4, sd 2692 ft.

CATAHOULA PARISH—S. D. Hunter's Tensas Delta 2, 21-9-7e, sd 3200 ft. Lochnager et al's Beazley 2, 26-9-6e, dr 3090 ft; McMillan 1, 29-8-6e, coring 3376 ft. Standard Oil Co.'s Tensas 1, 23-8-5e, sd 2557 ft.

CLAIBORNE PARISH — El Dorado Chief Oil Co.'s Jones 1, 8-20-6e, dk. Magnolia Pet. Co.'s Lee 1, 16-22-8, coring 4760 ft.

DESOTO PARISH—American Controlled Oil Co.'s Lanier 2, 5-11-11, dr 2672 ft. J. H. Askew's Richardson 2, 25-13-11, set 6-inch 2477 ft; Richardson 3, 25-13-11, set 10-inch 123 ft. Benson Oil Co.'s Wolf 1, 3-10-13, flowing 40 bbls 3008 ft. Carlton Drilling Co.'s Stevens 1, 12-11-16, dr 375 ft. Chal Daniels' Frost Johnson 1, 1-11-16, sd 100 ft. Dixie Oil Co.'s Jenkins 1, 9-12-11, dr 5892 ft. J. W. Downey's Dickson 1, 23-14-13, sd 1050 ft. Foster et al's Johnson 1, 7-10-12, dr 1625 ft. Hazlett-Simmons' Neely 2, 1-14-12, sd 600 ft. R. O. Roy's Lee 1, 33-14-13, dk; Whittaker 1, 4-13-13, rig; Tracy 1, 3-13-13, dk. Reliance Drilling Co.'s Jones 1, 8-11-14, sd 2815 ft. Wingfield et al's Haygood 1, 18-10-12, sd 2400 ft.

FRANKLIN PARISH—Barbour Oil Co.'s Baker 1, 3-15-7e, sd 2884 ft. Pittsburgh O. & D. Co.'s Moore 3, 12-11-6e, sd 2227 ft. Louisiana Pet. Co.'s Tensas 1, 11-11-6e, sd 2503 ft.

GRANT PARISH—W. D. Ball et al's Calhoun 1, 4-7-4w, sd 2106 ft. Swope et al's Fee 3, 18-9-1e, sd 1607 ft; Fee 5, 18-9-1e, dk.

LA SALLE PARISH — Elbert Pet. Co.'s Urania B-3, 7-10-2e, sd 700 ft. Wingfield et al's Gibson 2, 2-9-1e, sd 3073 ft.

MADISON PARISH—W. S. Smith's Yerger 1, 1-16-4e, arr to deepen 1700 ft.

MOREHOUSE PARISH—Consolidated Pet. Co.'s Perry 1, 14-20-4e, set 8-inch 785 ft. Keisker et al's Bonita Lbr. Co. 1, 10-23-9e, dk. G. E. Jordan's Southern Carbon Co. 1, 14-20-4e, set 15½-inch 94 ft. The Texas Co.'s Meyers 1, 15-22-7e, rig. United Carbon Co.'s Atkins 1, 26-20-5e, dk.

NATCHITOCHES PARISH—Tate et al's Leopole 1, 4-10-10, lcn.

OUACHITA PARISH—Imperial O. & G. Co.'s Tubbs 3, 13-19-3e, set 6-inch 2124 ft. Ouachita Nat. Gas Co.'s D'Arbonne 2-A, 34-19-3e, arr to test 2212 ft; Smith 7, 28-20-4e, set 6-inch at 2091 ft. Palmer Corp.'s West Virginia T. Co. 3, 5-18-4e, set 12-inch 164 ft. Southern Carbon Co.'s Fairbanks 8, 38-19-4e, arr to test 2133 ft. United Carbon Co.'s Nelson Fee 2, 6-19-5e, set 8-inch 932 ft. West Virginia O. & G. Co.'s Fee 5, 5-18-4e, set 6-inch 2138 ft.

RAPIDES PARISH—Collins Bros.' Allen 1, 25-5-1w, sd 1410 ft.

RICHLAND PARISH — Gulf Ref. Co.'s Wayne L. & T. Co. 2, 23-16-5e, sd 2435 ft; Millsaps 1, 8-17-6e, set 9-inch 2311 ft; Rhymes 3, 28-17-16, lcn. Louisiana Pet. Co.'s Binion 1, 22-17-16, sd 2474 ft. Moody & Seagraves' Osborne 1, 15-15-5e, set 6-inch 2292 ft; Noble 1, 36-16-5e, set 6-inch 2296 ft; Hatch 1, 34-16-15, rig; Hemler B-2, 6-15-6e, set 6-inch at 2283 ft; Hemler C-1, 29-16-6e, set 15½-inch at 146 ft; LaFlour 1, 18-16-6e, rig. Natural Gas & Fuel Corp.'s Sortor A-1, 9-16-6e, arr to test 2445 ft; Sortor B-3, 19-16-6e, lcn; Sortor B-4, 19-16-6e, lcn; Thompson A-1, 21-16-6e, lcn. Ouachita Nat. Gas Co.'s Cummings 1, 24-17-5e, set 12-inch 190 ft. Oliver & Master's Hatch 2, 2-15-5e, rig. Roxana Pet. Corp.'s Tensas 2, 1-14-5e, sd 2637 ft. Ruston Drilling Co.'s Sortor 1, 17-16-6e, rig. Standard Drilling Co.'s Delta H. L. Co. 1, 22-16-7e, dr 2786 ft. Southern Carbon Co.'s Sortor 1, 20-16-6e, dr 2248 ft; Sortor 2, 20-16-6e, lcn; Stovall Drilling Co.'s Dunning 1, 26-16-6e, dr 2168 ft.

SABINE PARISH—Arkansas Fuel Oil Co.'s Logan A-1, 23-10-12, wosr 2300 ft, td 4258 ft; Logan 10, 32-10-12, sd 3980 ft. S. P. Borden Tr.'s Logan 1, 36-10-13, dr 2403 ft. Clark Seip et al's Moore 1, 32-10-12, dr 1905 ft. Dixie Oil Co.'s Steinfield 1, 20-10-12, dr 2025 ft.

UNION PARISH—Barbour Oil Co.'s Tugwell 1, 21-22-1e, sd 2080 ft. Carter et al's Security Trust 1, 7-23-1e, sd 2257 ft. Interstate Nat. Gas Co.'s Parks 1, 32-20-3e, dk; Stephenson 1, 6-21-4e, lcn. Southern Carbon Co.'s Harris 1, 20-20-4e, dr 2154 ft. John Potts Agent's Bernstein 1, 30-20-4e, dk.

WEBSTER PARISH—Arkansas Nat. Gas Co.'s North Central Texas 1, 36-23-10, set 10-inch 475 ft. Humble's Gray 1, 26-21-10, dr 3787 ft; Babb 5, 14-21-10, dr 2718 ft. S. A. Lanes' Miles 1, 24-17-9, sd 1469 ft. Magnolia's Babb 5, 14-21-10, set 11¾-inch 2810 ft; Gray 1, 26-21-10, dr 2961 ft; Aaron Cox 3, 22-21-10, dk; Marshall 5, 21-21-10, wsor 2526 ft; Mison 1, 22-22-10, dr 2397 ft; Cole 1, 27-21-10, dr 3687 ft; Munn 1, 29-23-9, dr 100 ft; D. G. Cox 1, 22-21-10, dr 2935 ft; Roseberry 1, 29-23-9, dr 2205 ft. Northwest Louisiana Gas Co.'s Munn 1, 36-23-10, set 6-inch 2681 ft. Ohio Oil Co.'s Crichton 2, 21-21-10, rig; Holloway 4, 23-21-10, testing 4537 ft.

WINN PARISH—Ohio Oil Co.'s Rolen 1, 9-12-1w, sd 2149 ft; Rolen Account 1, 5-12-1w, dr 3135 ft. H. M. Roarks' Southern Mineral Co. 3, 19-11-3w, dr 645 ft.

WEST CARROLL PARISH—Palmer Corp.'s White 1, 2-19-10, tested sw 2475 ft.

SOUTH LOUISIANA

CALCASIEU PARISH—Newton Drlg. Co.'s Dupre 1, Lake Charles, dr 2520 ft gbo.

CAMERON PARISH—Pure Oil Co.'s Sweet Lake 3, flowing 350 barrels; Sweet Lake 4, dr 5400 ft; Sweet Lake 5, Sweet Lake, dr 5280 ft. La. Land & Explo. Co.'s Calcasieu Lake A-1, Big Lake, dr 1252 ft water sand. Calcasieu Oil Co.'s Olevia 1, Kelso Bayou, dr 3660 ft sand; Watkins 1, Kelso Bayou, r u.

IBERIA PARISH—La. Land & Explo. Co.'s Vermilion Bay 2, three mi sw Cypremont Point, dr 450 ft gbo; Avery Island 1, 15 mi sw New Iberia, lcn. Jefferson Oil & Dev. Co.'s Jeff Island Salt Co. 2, lcn.

IBERVILLE PARISH—Roxana's Wilbert 1, White Castle, 12¼-in cas set and cem at 1055 ft. Union Sulphur Co.'s Wilbert 1, Atchafalaya, ru; Schwing 1, Atchafalaya, sp.

JEFF DAVIS PARISH—Estropal Oil Co.'s Le Doux 2, sd 2980 ft. John Carrodine et al's Walsh 1, Welsh, sd 1355 ft.

ST. MARTIN'S PARISH — Rycade Oil Corp.'s Atchafalaya 1, fsh 3916 ft; Atchafalaya 2, 1½ miles ne of No. 1, sp.

TERREBONNE PARISH — Southern Gas Co.'s South Down 3, dr below 2400 ft; South Down 4, lcn.

TEXAS GULF COAST

Completions

Company, Well and Location		Initial Production Bbls.	Depth
MONTGOMERY COUNTY—			
Johnson Hardy, Hardy 1, 4 mi s Conroe	*		1000
FORT BEND COUNTY—			
Sun Oil Co., T. R. Farber 4	*		2500
MATAGORDA COUNTY—			
Jno. Deering, Caney Cattle Co. 1	*		1520

AUSTIN COUNTY—Humble's Gotosky 2, Raccoon Bend, dr 2205 ft shale and lime; Stravoski 1, Raccoon Bend, dr 228 ft shale. Alexander & Lyles' Goebel 1, sd 1300 ft. L. H. Weadock's R. M. Ward 1, sp.

BRAZORIA COUNTY—Roxana's Allen Bernard 1, Allen Dome, flowing by heads from 5337 ft; Allen 4, Allen Dome, dr 4236 ft, hard sandy lime; Randon 1, Allen Dome, dr 4305 ft sticky shale; Bell 2, Clemons Dome, td 4872 ft.

CHAMBERS COUNTY—Pure Oil Co.'s Lost River 1, Lost Lake Dome, waiting for fuel oil, td 2300 ft.

COLORADO COUNTY—Rich Oil Corp.'s Von Rosenberg 1, about 2¼ miles s of Columbus, dr 250 ft rock.

FORT BEND COUNTY—Sun Oil Co.'s Kasparek 1, dr 2300 ft, lime; J. R. Farmer 4, abn

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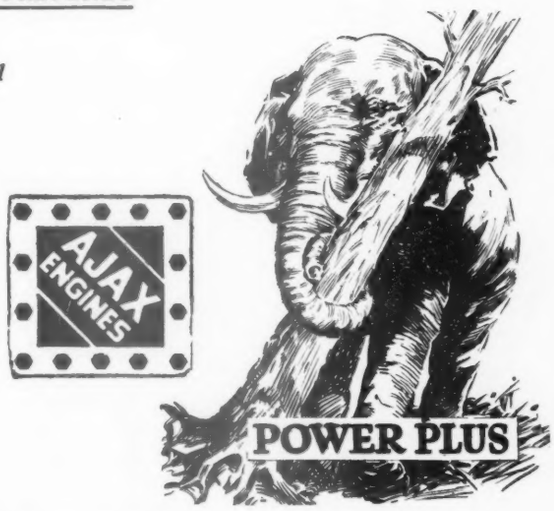

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2500 ft; H. R. Farmer 3, dr 1100 ft, lime and sulphur. Humble's Sugarland. Industries 1, Sugarland, setting up. Sun's J. R. Farmer 5, dk; H. R. Farmer 4, std. Gulf's Wolf 7, Long Point, lcn; Trone 6, Long Point, lcn.

HARRIS COUNTY—Dr. P. S. Griffith's Fee 2, 12 mi n of Houston, sd 3517 ft. Juanita Oil Co.'s Kitsman 1, 3 mi n of Cypress, td 1180 ft. Humble-Marland's Warren 2, Hockley, dr 3585 ft, hard sand.

JEFFERSON COUNTY—Deep Test Oil Co.'s McFaddin 1, 4 mi ne of Spindle Top, sd 2175 ft. Gulf's Bordages 4, Fannette, dr 4340 ft. Beaumont Oil & Prospecting Co.'s Tyrell 1, 3 mi nw of Beaumont, sd 4200 ft. Southern Spindle Top Oil & Dev. Co.'s Young 1, 1 mi w of Nederland, sd 3350 ft. Jim McMurry's Crosby 1, 5 mi ne of Port Arthur, sd 3350 ft. Port Arthur Oil & Dev. Co.'s West 4, Westbury, dr 2925 ft, gbo.

LIBERTY COUNTY—Harrison Oil Co.'s Quintette 2, N. Dayton, temp abn at 4602 ft. Judge Titwell et al's Gardner 1, 5 mi e of Davis Hill, std 3510 ft. The Texas Co.'s Havard 1, Davis Hill, dr 4095 ft, sand. Barlow et al's Minchcliff 1, 2½ mi ne Cleveland, sd 2215 ft. Yount-Lee Oil Co.'s Mitchell 1, north of S. Liberty field, dr 820 ft, hard rock.

MATAGORDA COUNTY—Gulf's Sanborn 4, Hawkinsville, dr. Matagorda County Dev. Co.'s Hawkins 1, Bay City, sd 1985 ft, shale. John Deering's Caney Cattle Co. 1, abn at 1520 ft.

MONTGOMERY COUNTY—Brains et al's Fitch A-1, 3 mi e of Spring, dr 3680 ft, shale and lime. Johnson Hardy's Hardy 1, 4 mi s of Conroe, abn at 1000 ft. J. W. Hardy's Stewart 1, lcn.

WALLER COUNTY—J. R. Garrett et al's Garrett 1, 12 mi s of Hempstead, dr below 970 ft, shale.

EAST TEXAS

Completions

Company, Well and Location		Initial Production Bbls.	Depth
HARRISON COUNTY—			
State Line O&G Co., Abney 5, E. Little sur		*	2965
ANDERSON COUNTY—			
Pure Oil Co., Cook 1, Lewellen sur		*	1600
CHEROKEE COUNTY—			
Humble, Ragsdale 3, N. Johnson sur		*	3916

ANDERSON COUNTY—Brooks et al, Hanby 1, Joseph Mertz sur, dk. Humble's Jones 1, Dan Roberts sur, sd 3650 ft; Spencer Clemens 3, Sessions sur, dr 3960 ft.

CAMP COUNTY—J. C. Rogers's Botd 1, R. M. Montgomery sur, dr 401 ft.

CHEROKEE COUNTY—Humble's Elliott Clark 1, M. Windsor sur, dr 4003 ft; Panhandle Oil Co.'s Whalen 1, J. Jordan sur, sd 550 ft. Joe Walter et al's Barns & DeLoach 1, Perry Reese sur, dr 712 ft.

HENDERSON COUNTY—W. K. Cayton et al's Hoffer & Nash 1, H. Jefferson sur, sd 2910 ft.

HARRISON COUNTY — J. R. Bahan's Furrh 5, J. Short sur, set 10-in at 421 ft. Doney et al's Furrh 1, Joel Lipscomb sur, testing 1006 ft; Furrh 2, Joel Lipscomb sur, dk. C. H. Lyons Furrh 1, James Short sur, set 10-in at 100 ft. Magnolia's Anderson 1, J. Womack sur, wosr 2402 ft. Mitchell et al's Jones 1, J. Lipscomb sur, wosr 957 ft. Simms Oil Co.'s Pollard 1, J. Short sur, rig. State Line O&G Co.'s Mullins 2, T. D. Wilson sur, sd 996 ft. Thomasson et al's Timmons 2, Joel Lipscomb sur, set 10-in at 102 ft. Tylong O&G Co.'s Vaughn 3, W. R. Anderson sur, set 10-in at 103 ft. A. L. Waller et al's Bryson 2, W. R. Anderson sur, testing 1916 ft; Bryson 3, W. R. Anderson sur, set 10-in at 105 ft.

KAUFMAN COUNTY — Cranfield et al's Nicholson 1, A. Bennett sur, sd 3250 ft.

MARION COUNTY — Lumberman's Oil Co.'s Bonham 1, R. Potter sur, dr 1200 ft.

NACOGDOCHES COUNTY—P. R. Harris et al's Griffin 1, J. Anderson sur, sd 280 ft. Stein & Lewis Birdwell 1, Jose A. Chirino sur, sd 1100 ft. Union Sulphur Co.'s Whitermark 1, Jose A. Chirino sur, dr 2605 ft.

PANOLA COUNTY—Bethany O&G Co.'s Burns 3, W. A. Birdsong sur, testing 1015 ft; Burns 4, W. A. Birdsong sur, dr 60 ft; Richardson 3, J. Yarnell sur, set 10-in at 100 ft. S. H. Gardner et al's Roquemore 1, B. C. Jordan sur, set 10-in at 100 ft. H. Hins' Jones 1. G. Goodwin sur, rig. Magnolia's Fletcher 1, B. C. Jordan sur, dr 2442 ft; S. Davenport 2, Jessee Dunlop sur, wosr 2398 ft; Jernigan Estes 1, Lowell sur, set 13⅜-in cas at 166 ft; Trosper 1, J. Shandoin sur, set 4½-in at 2416 ft; Sol Oden 1, E. F. Mitcheson sur, set 8¼-in at 1017 ft; Steele 13, B. C. Jordan sur, set 13⅜-in at 135 ft.

RUSK COUNTY—C. M. Joiner et al's Bradford 1, K. Ximines sur, fsh 1110 ft. Magnolia's Durren 1, Agulla Norris sur, dk. McCurrie et al's Sparks 1, Jessee Coarse sur, sd 2148 ft. The Texas Co.'s Schultz 1, Loffton sur, sd 3349 ft. Osborne et al's Matthews 1, D. Cortinas sur, sd 2330 ft.

SMITH COUNTY — Dr. Gaither et al's Parker 1, Don Thomas Quevedo sur, sd 3251 ft.

SHELBY COUNTY—Magnolia's Pickering Lbr. Co. 1, Wm. J. Crane sur, dr 3336 ft. Wm. Sebastian's Pickering Lbr. Co. 1, T. F. Polly sur, arr to set cas at 2923 ft.

SABINE COUNTY—Crater Oil Co.'s Nona Mills 2, Anthony Shoals sur, junked hole while sdtr at 3180 ft, 3294 ft.

UPSHUR COUNTY — S. W. Richardson's Newsome 1, J. R. Davis sur, sd 2025 ft; Minor 1, A. Lowery sur, fsh 3500 ft.

ARKANSAS

Completions

Company, Well and Location		Initial Production Bbls.	Depth
MILLER COUNTY—			
Lenz et al, Mann 1, 22-15-26		*	3030
UNION COUNTY—			
Rovenger Oil Corp., McCain 1, 4-17-14		*	3098

BRADLEY COUNTY—Johnson & Adams' Southern Lbr. Co. 1, 12-12-12, sd 2204 ft.

COLUMBIA COUNTY — Mitchell et al's Franks 1, 25-19-22, sd 150 ft. Sunny Jim Oil Co.'s Runyan 1, 3-16-21, dr 2000 ft. VanHagen Synd's Pickler 1, 19-19-22, sd 850 ft; Mason 1, 31-19-22, rig.

DREW COUNTY—McClintock et al's Ogle 1, 35-13-3e, sd 2250 ft.

GRANT COUNTY—Jones et al's Meeks 1, 5-4-11, sd 1400 ft.

LA FAYETTE COUNTY —Ken-Saw Pet. Co.'s Kensaw 1, 31-19-24, dr 3250 ft.

LINCOLN COUNTY — Pine Prairie O&G Co.'s Carter 1, 33-10-6, sd 2176 ft.

LITTLE RIVER COUNTY—Grote et al's Aleen 1, 2-13-31, sd 2941 ft.

MILLER COUNTY—Guess et al's Saunderson 1, 14-15-25, dr 1810 ft.

NEVADA COUNTY—Aines & Zinng's Womack B-1, 10-14-21, wosr 1215 ft. Fruen et al's Rhodes 1, 22-12-21, sd 1513 ft. McDonald et al's Pell 1, 9-15-22, dr 2225 ft. J. J. O'Brien's Haynie A-5, 6-14-20, wosr 1204 ft; Haynie B-1, 6-14-20, wosr 1218 ft; Haynie B-5, 1-14-21, plugged back to 1163 ft; Moss A-17, 1-14-21, rig. Wright Oil Co.'s Groves 3, 12-14-21, wosr 1151 ft.

OUACHITA COUNTY — Buffalo Oil Co.'s Culp 1, 22-15-19, sd 2075 ft. Brewer et al's Curry 1, 32-15-18, wosr, 2201 ft. Copenhagen et al's Berg 3, 13-15-17, sd 2193 ft. A. T. Grayson's Reynolds 1, 12-14-17, sd 1756 ft. H. M. Harrell's Ponder A-1, 18-14-17, arr to set 6⅝-in at 1590 ft. Humble O. & R. Co.'s Murphy 4, 3-16-15, tested dry 2582 ft. Magnolia Pet. Co.'s Stout B-1, 28-14-16, dr 3400 ft. Marine Oil Co.'s Hayes 5-A, 4-16-16, lcn; Hayes 8, 4-16-15, milling cas 2265 ft. Phillips Pet. Co.'s Betty Joyse 19, 33-15-15, tested sw at 2629 ft. Standard Oil Co.'s Umsted 5, 32-15-15, set 4½-in at 2655 ft.

UNION COUNTY—C. H. Allison's Fitzgerald 10, 17-12-15, set 10-in at 202 ft. Brown et al's Slaughter 1, 2-17-16, sd 2296 ft. Bondurant et al's Garner 1, 8-18-12, sd 2635 ft. Booth et al's Rowland 1, 8-17-11, coring 2966 ft. Garrett-Modisette Drlg. Co.'s Gregory 1, 10-17-14, arr to swab 2765 ft. Gulf Ref. Co.'s Murphy 45, 4-16-15, dk. Grimes Bros. Vanhook 9, 7-18-14, set 6-in at 2207 ft. Imperial O&G Co.'s Goodwin 1, 26-17-16, sd 3118 ft. E. M. Jones' Crain 2, 2-17-14, set 6⅝-in at 3010 ft; Crain 3, 2-17-14, dr 2370 ft; Crain 4, 2-17-14, set 10-in at 162 ft. W. R. Keever's Ezell 5, 12-17-15, set 10-in at 123 ft. Keene & Wolfe's Murphy 6, 9-16-15, dk. Lion O&R Co.'s Horn 1, 17-17-13, tested dry at 2637-2641 ft; Leverette 1, 11-16-16, dr 20 ft. Laurel O&G Co.'s Houston 1, 12-16-16, washing to bottom 2623 ft. Lyall et al's Stegall 1, 11-17-15, sd 47 ft. Magna Prod. Co.'s Townsend 1, 10-17-14, dk. Magnolia Pet. Co.'s Carroll 2, 1-17-14, sd 1500 ft; Laney 3, 8-16-16, dk; Laney 4, 8-16-16, dk; Wilson 7, 17-16-15, set 6⅝-in at 2480 ft; Murphy 8, 8-16-15, cmtd back to 2440 ft. Mountz et al's Pratt 6, 8-18-15, rcmtd 6-in at 2146 ft. C. E. Murdock's Murphy 2, 18-16-15, arr to deepen 2754 ft. Murdock et al's Vestal 1, 17-16-15, sd 2561 ft. National Consolidated Pet. Corp.'s Fagg 1, 8-16-16, wosr 2643 ft. Natural G&F Corpn's Hill B-3, 5-16-15, lcn. J. J. O'Brien's Saxon 1, 16-16-16, sd 2659 ft. Ohio Oil Co.'s Crain 3, 1-17-14, wosr 2996 ft; Crain 4, 1-17-14, dk; Crain 5, 1-17-14, testing 3056 ft; Crain 6, 1-17-15, dr 2892 ft; Crain 7, 1-17-14, dr 2305 ft; Goode 1, 2-17-14, dr 2281 ft; Goode 2, 1-17-14, dr 2535 ft; W. Pumphrey 1, 1-17-14, sd 3037 ft; R. Pumphrey 1, 2-17-14, testing 3012 ft; R. Pumphrey 2, 2-17-14, dr 2675 ft; R. Pumphrey 2, 2-17-14, dr 2675 ft; R. Pumphrey 3, 2-17-14, dr 2355 ft. Pitcher et al's Arkansas Timber Co. 1, 21-17-11, dr 1356 ft. Pitcher et al's Kinard 1, 17-19-15, dr 1510 ft. Rice et al's Newton 1, 13-17-16, sd 3183 ft. Rovenger Oil Corpn's Harrell 4, 15-17-16, dk; Sun Oil Co.'s Hays 3, 3-16-15, sd 2275 ft. Standard's Murphy 33, 4-16-15, sd 2585 ft. Wingfield et al's Greer 1, 15-19-13, sd 50 ft. Wood's Houston 1, 12-16-16, sd 2733 ft.

OKLAHOMA

T 28n, R 3, Grant County—Sec 6, Otstot Dev. Co.'s Snyder 1, ne c, sd 4518 ft.

T 27n, R 21w, Harper County—Sec 24, A. F. Koplan Oil Co.'s Selman 1, ne c se, spd and sd.

T 27n, R 15w, Woods County—Sec 20, Sooner State Oil Co. & E. R. Black's Marcum 1, c sw, spd and sd.

T 27n, R 5w, Grant County—Sec 18, J. W. Bailey et al's Custard 1, c se, fsh 4605 ft.

T 27n, R 1e, Kay County—Sec 8, Mathews et al's Buessing 1, nw c, cellar.

T 27n, R 1e, Kay County—Sec 28, Hazel Atlas Glass Co.'s Vickery 2, nw c se se nw, lcn.

T 26n, R 4w, Grant County—Sec 34, Sooner State Oil Co.'s Royce 1, sw c nw, sd 550 ft.

T 26n, R 2e, Kay County—Sec 32, J. A. Vincent et al's McNeal 1, sw c ne, sd 2795 ft.

T 25n, R 22w, Harper County—Sec 14, Hoffer Oil Co.'s Cooper 1, nw c se, sd 4182 ft.

T 25n, R 4w, Grant County—Sec 22, Cowden et al's Vallner 2, ne c se ne sw, dr 5550 ft.

T 25n, R 1w, Kay County—Sec 15, Tonkawa Dev. Co.'s McDaniels 1, se c, ¶1 at 3980-88 ft, 200 ft oih, td 4198 ft, sd.

T 25n, R 1e, Kay County—Sec 10, Miller Bros.' Anderson 1, nw c se, hfw 2565-90 ft, dr 3640 ft.

T 21n, R 1w, Noble County—Sec 7, R. L. Corley's Williams 1, se c ne sw, sd 1920 ft.

Oklahoma Panhandle

T 6n, R 2e, Cimarron County—Sec 24, J. G. Phillips' School Land 1, nw c, ur 3905 ft.

T 5n, R 2e, Cimmaron County—Sec 22, Sinclair O&G Co.'s School Land 1, nw c dr 4521 ft.

T 5n, R 5e, Cimarron County—Sec 27, Ramsey Brothers' State 1, c nw ne, show 35 bbls, shot 30 qts 4090-4140 ft, td 4681 ft, P. B. to show.

T 5n, R 6e, Cimarron County—T 4n, R 1e, Cimarron County—Sec 34, Ramsey's School Land D1, c se, dr 2136 ft.

T 4n, R 25e, Beaver County—Sec 22, O. H. Bonner et al's Maple 1, c se ne, rig.

T 3n, R 7e, Cimarron County—Sec 25, Gladys Belle Oil Co.'s Israel 1, sw c ne, td 4392 ft, plugging.

T 2n, R 9e, Cimarron County—Sec 2, Fenton, Brookins & Flowers Smaltz 1, sw c ne ne, spd and sd.

T 2n, R 18e, Texas County—Sec 23, Connelly, Trammell & Danner's Graves 1, ne c sw sw, sd 315 ft.

T 1n, R 15e, Texas County—Sec 26, Hydraulic Oil Co.'s Hitch 1, ne c, sd 600 ft.

T 1n, R 19e, Texas County—Sec 11, Trammell, Connelly & Danner's Tansey 1, se c nw, sd 280 ft.

T 1n, R 18e, Texas County—Sec 11, Three Way Oil Co.'s Price 1, se c nw, show gas 2560-2620 ft, sd 3005 ft.

T 24n, R 17w, Woodward County—Sec 32, Otstot Dev Co.'s Simmons 1, se c sd 1500 ft.

T 24n, R 6w, Garfield County—Sec 9, Pulse & Beamer's White 1, se c nw, sd 4720 ft.

T 24n, R 3w, Garfield County—Sec 14, Sugar Oil Co.'s Garsarch 1, se c, dr 3090 ft.

T 23n, R 16w, Major County—Sec 4, Henry Landon's Parker 1, ne c nw, sd 1150 ft.

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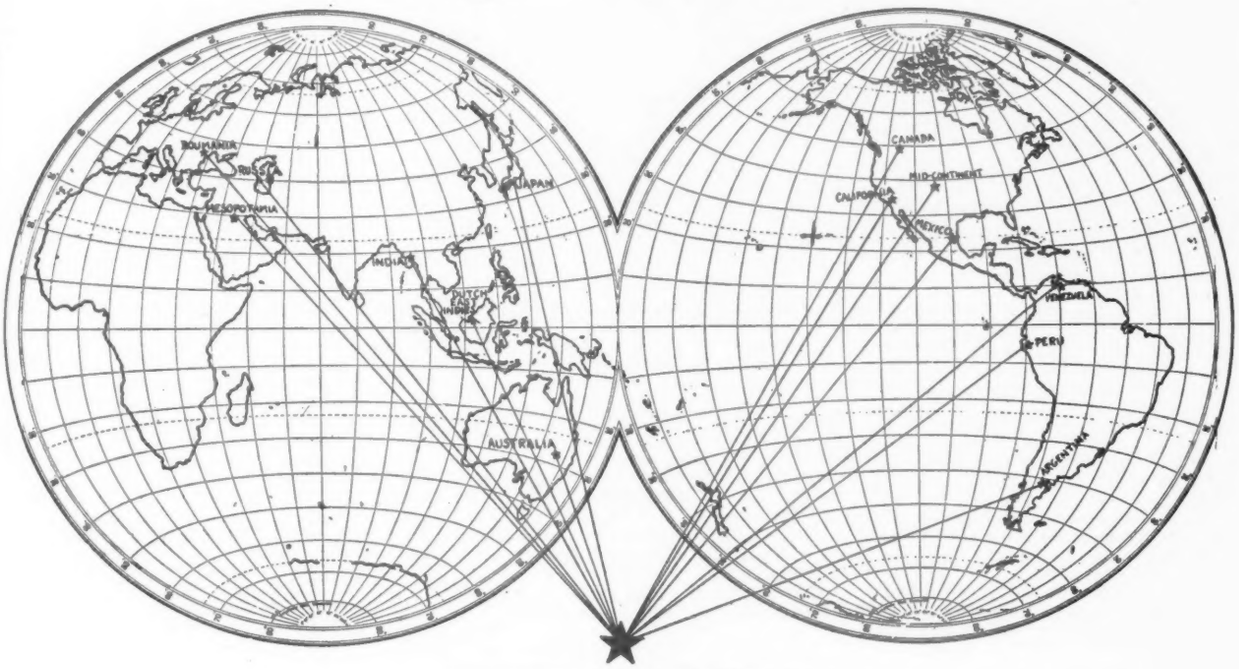

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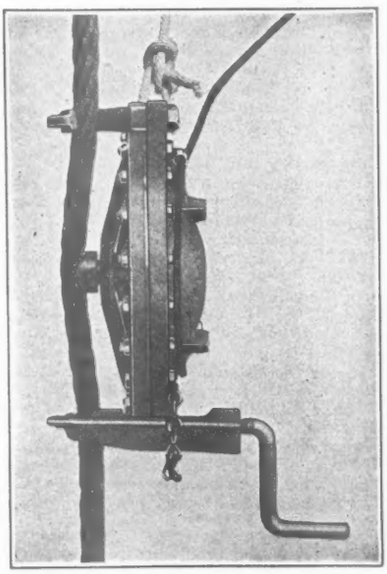

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Say you saw it in The OIL WEEKLY

T 22n, R 5w, Garfield County—Sec 3, Ashby & Barr's Swinery 1, nw c, sd 740 ft.
T 21n, R 25w, Ellis County—Sec 9, Oklahoma Northern Oil Co.'s 1, c se nw, cas stuck 300 ft.
T 21n, R 21w, Woodward County—Sec 25, Sharon et al's Elmore 1, sw c, sd 2778 ft.
T 21n, R 4w, Garfield County—Sec 12, Beopple et al's Schriver 1, c e l sw sw ne, sd 1850 ft.
T 20n, R 5w, Garfield County—Sec 2, Sinclair O&G Co.'s Fee 1, sw c ne, fsh tools 6254 ft.
T 20n, R 4w, Garfield County—Sec 9, Marland Oil Co.'s Looman 1, ne c se, dr 5665 ft.
T 20n, R 4w, Garfield County—Sec 12, Marland Oil Co.'s Miller 1, sw c sd 4586 ft.
T 19n, R 4w, Logan County—Sec 8, Champlin Ref Co.'s Musgrove 1, se c sw, dr 2915 ft.
Sec 33, Bryan & Emery's 1, nw c se, plugging 4504 ft.
T 18n, R 15w, Dewey County—Sec 9, Huckelby & McCoy's Perfect 1, ne c, 3274 ft, sd.
T 18n, R 4w, Logan County—Sec 11, Welch, Acton & Brown's Hall 1, ne c se, top pay 4750-68 ft, swab 130 bbls, show wtr, td 4785 ft, sd.
T 18n, R 3w, Logan County—Sec 33, Haley & Pioneer Pet. Co.'s Quier 1, sw c se, dr by cas 3690 ft.
T 17n, R 1e, Logan County—Sec 20, T. B. Slick's Signs 1, nw c sw, sd 5067 ft, tools moved out.
T 17n, R 1e, Logan County—Sec 28, T. B. Slick's Berry 1, sw c se, sand 4658-61 ft, 2800 ft oih, show wtr, ur 6-in cas 5194 ft.
T 16n, R 7w, Kingfisher County—Sec 6, Pet. Eng. Core Drlg. Co.'s Campbell 1, c nw se, rig.
T 16n, R 5w, Kingfisher County—Sec 26, Galt Brown Oil Co.'s Johnson 1, c nw, dr 4025 ft.
T 16n, R 1w, Logan County—Sec 28, Blackford O&G Co.'s Lair 1, c s l n½ se, sd 1675 ft.
T 15n, R 1w, Logan County—Sec 12, Bu Vi Bar Pet. Co.'s Kirkpatrick 1, c sw, dr 4060 ft.
T 14n, R 6w, Canadian County—Sec 9, A. D. Spears' Piatt 1, se c ne, sd 3223 ft.
T 13n, R 10w, Oklahoma County—Sec 18, Carrell Oil Corp.'s North 1, ne c, sd 1500 ft.
T 13n, R 3w, Oklahoma County—Sec 18, Slick & Bailey's Lufkin 1, c ne se, td 3750 ft, rust.
T 12n, R 3w, Oklahoma County — Sec 15, Cromwell O&G Co.'s Thompson 1, sw c ne ne, dr 6490 ft.
T 10n, R 6w, Canadian County—Sec 1, J. V. Bailey's Robinson 1, c ne nw, spd and sd.
T 27n, R 9e, Osage County—Sec 7, C. B. Peters' 1, ne c se, dr 1620 ft.
T 28n, R 8e, Osage County—Sec 13, Stephenson, Henry & Rock's 1, sw c nw sw, rig.
T 25n, R 7e, Osage County—Sec 8, I. T. I. O. Co.'s 1, se c ne, lcn. Sec 22, Geo. Parker's 1, c s l ne, sand 2660-80, shot 30 qts., 15 bbls and some wtr. testing.
T 23n, R 10e, Osage County—Sec 7, Sheeders O&G Co.'s 1, c se, fsh tools 2340 ft.
T 21n, R 6e, Pawnee County—Sec 16, F. R. Billingslea & 101 Ranch Co.'s School Land 2, nw c ne se, dr 3285 ft.
T 18n, R 3e, Payne County—Sec 32, Garber, Pulse & Gloyd's Widows 1, ne c se nw, sd 1200 ft.
T 17n, R 3e, Lincoln County—Sec 20, Willis O&G Co.'s Gunn 1, nw c se, td 4677 ft, water, sd.
T 14n, R 7e, Creek County—Sec 16, Bu Vi Bar Pet. Co.'s Nero 1, c se ne, dr 360 ft.
T 13n, R 4e, Lincoln County—Sec 16, Bu Vi Bar Pet. Co.'s School Land 1, c se ne, sd 4500 ft.
T 12n, R 8e, Okfuskee County—Sec 34, Transcontinental Oil Co.'s Knight 1, nw c ne nw, sand 2840-48 ft, ur 8-in cas.
T 19n, R 10e, Tulsa County—Sec 24, Holmes et al Ragen 1, nw cne se, sd 1968 ft.
T 19n, R 11e, Tulsa County—Sec 33, Anadarko Western Oil Co.'s Hodge 1, nw c ne nw sw, 2525 ft, fsh.
T 17n, R 13e, Tulsa County—Sec 1, E. A. Hawley's Taylor 1, se c ne, spd and sd.
T 16n, R 10e, Creek County—Sec 35, Murta & Cole's Fore 1, nec sw, dlg 2334 ft.
T 15n, R 9e, Creek County—Sec 33, C. G. Tibbens' Marshall 1, swc se sw, mach.
T 14n, R 9e, Creek County—Sec 1, L. C. Wheeler's King 1 Morton, sec nw, lcn.
T 14n, R 11e, Okmulgee County—Sec 19, White Eagle O. & R. Co.'s Bugg 2, nwc ne se, dr 2300 ft.
T 13n, R 9e, Okfuskee County—Sec 21, Barnsdall Oil Corp.'s Self 1, sw c se ne, ts 3173 ft, show oil, setting casing.
T 12n, R 10e, Okfuskee County—Sec 8, Blakely et al's M. Yarhola 1, sw c se nw, dr 3150 ft.
T 11n, R 10e, Okfuskee County—Sec 4, Moose & Daniels' Stidham 1, sw c nw, sd 622 ft.
T 10n, R 15e, Wagoner County—Sec 11, J. H. Winters' Lynch 1, sw c nw nw, dr 1100 ft.
T 15n, R 18e, Muskogee County—Sec 12, C. F. Finefield's Jobe 1, nw c se, sd 1252 ft.
T 11n, R 13e, Okmulgee County—Sec 27, G. N. Buzzard et al's Thompson 1, nw c ne ne, dr 2060 ft.
T 13n, R 17e, Muskogee County—Sec 34, Elk Dr. Co.'s McKee 1, c s l se se se, sd 160 ft.
T 13n, R 19e, Muskogee County—Sec 4, W. R. Sommerville's Carver 1, ne c se, ¶2 898-912 ft, show oil 1495-15-13 ft, sd 1620 ft.
T 9n, R 16e, Pittsburg County—Sec 32, Pattison et al's Smith 1, ne c sw se, dr 3400 ft.
T 9n, R 18e, Haskell County—Sec 10, Marion Oil Co.'s Sanders 1, nw c ne sw, dr 2200 ft.
T 5n, R 18e, Latimer County—Sec 15, Limestone O&G Co.'s Murray 1, sw c, sd 15051 ft.
T 11n, R 2e, Pottawatomie County—Sec 22, Wilcox O&G Co.'s Hollis 1, sw c, dr 5060 ft.
T 10n, R 2w, Cleveland County—Sec 22, Cromwell & Franklin's Donovan 1, c sw, sd 4706 ft.
T 10n, R 3e, Pottawatomie County—Sec 12, Sikes, Kilgore & Shaffer O&R Co.'s Ives 1, c se se, cmt 6-in cas 4135 ft, td 4150 ft.
T 10n, R 4e, Pottawatomie County—Sec 28, Central National Oil Co.'s Toney 1, sw c, dr 3863 ft.
T 10 n, R 5e, Pottawatomie County—Sec 16, Clark, Edwards et al's School Land 1, ne c sw, hfw 4022-50 ft, cmtg cas 4473 ft.
T 10n, R 7e, Seminole county—Sec 21, Gypsy Oil Co.'s Soloman 1, se c ne, ts 3730 ft, td 3734 ft, pinched in to 50 bbls.
T 9n, R 1w, Cleveland County—Sec 7, Galt Brown Oil Co.'s Alexander 1, c nw, hfw 4212-80 ft, dr 4343 ft.
T 8n, R 2e, Pottawatomie County—Sec 24, Superior Oil Corp.'s Jones 1, sw c nw ne, dr 4020 ft.
T 8n, R 5e, Seminole County—Sec 14, Barnsdall Oil Corp.'s Fife 1, ne c nw, dr 4262 ft, 1500 ft oih.
T 2n, R 5e, Pottawatomie County—Sec 16, I. T. I. O. Co.'s School Land 1, se c sw, sd 4096 ft.
T 7n, R 1w, Cleveland County—Sec 15, Sooner Oil Co.'s Vandeer 1, ne c nw sw, cmtd 8-in cas 2995 ft, sd.
T 7n, R 6e, Seminole County—Sec 7, Simon & Beam's Palmer 1, ne c nw ne, rig. Sec 13, Snowden & McSweeney's Tiger 1, nw c, ts 4315 ft, also td flow 40 bbls per hour.
T 7n, R 7e, Seminole County—Sec 5, Mid-Cont. Pet. Corp.'s Smith 1, nw c ne, top Wilcox 4443 ft, td 4444 ft, est 60 bbls per hour, shut in for tankage. Sec 32, I. T. I. O. Co.'s Marshall 1, nw c sw, fsh 4225 ft.
T 7n, R 8e, Hughes County—Sec 21, Jarvis & Holmes Street 1, nw c se nw, 3090-3100 ft, 300 ft oih 3113-28 ft, 1500 ft oih, dr 3575 ft.
T 6n, R 2e, Pottawatomie County—Sec 10, Davis, Detrick et al's McGahey 1, se c nw, sd 4988 ft.
T 6n, R 6e, Seminole County—Sec 1, T. B. Slick's Moore 1, sw c ne sw, show oil and gas 2408-12 ft, td 2460 ft, set 3 joints perforated pipe, co.
T 6n, R 7e, Seminole County—Sec 5, Magnolia Pet. Co.'s Vierson 1, se c nw, fsh 3315 ft.
T 6n, R 8e, Seminole County—Sec 18, Carter Oil Co.'s Phillips 1, nw c ne nw, owd, fsh 3936 ft, td.
T 5n, R 9e, Hughes County—Sec 20, Noble O&G Co. et al's Wicket 1, se c, spd and sd.
T 9n, R 22w, Beckham County—Sec 32, O&H Pet. Co.'s Barnes 1, nw c ne, owd, 2560 ft, fsh, small show oil 2210 ft.
T 9n, R 5w, Grady County—Sec 13, Remington et al's Fulton 1, sw c ne, sd 720 ft.
T 8n, R 23w, Beckham County—Sec 5, Prince Bros.' Martin & Atlantic's 1, c sw nw, co 2526 ft.
T 7n, R 22w, Greer County—Sec 16, Magnolia's Chiney 1, ne c, dr 2930 ft.
T 7n, R 5w, Grady County—Sec 13, Bedman et al's Kemp 1, c sw ne, sd 2400 ft.
T 6n, R 10w, Caddo County—Sec 22, English Drlg. Co.'s Jacobs 1, nw c se, sd 3180 ft.
T 6n, R 12w, Caddo County—Sec 29, W. J. Hartley's Gilbreath 1, se c nw se, owd, sd 3394 ft.
T 5n, R 7w, Grady County—Sec 7, Nichols & Page Drake 1, c e l se, sd 1900 ft.
T 2n, R 10w, Comanche County—Sec 10, Danciger O&R Co.'s Skitler 1, ne c se, sd 2019 ft.
T 1s, R 5w, Stephens County—Sec 8, Magnolia's Parker 1, nw c ne sw, dr 3650 ft.
T 2s, R 16w, Kiowa County—Sec 6, Landfair et al's 1, se c sw se, sd 2263 ft.
T 5n, R 7e, Pontotoc County—Sec 36, Shaffer O&R Co.'s Gilcrease 1, nw c ne, gas 2280-2310 ft, td 2340 ft, flowed 150 bbls per day, lost hole, skid rig for new hole, dr 1860 ft.
T 5n, R 4e, Pontotoc County—Sec 12, Gillespie et al's Fleming 1, sw c se, swab 50 bbls 2043-54 ft, 25 bbls at 2556-57 ft, hfw, in Wilcox 2838-52 ft, pb 2550 ft, sd.
T 5n, R 9e, Hughes County—Sec 20, Noble O&G Co.'s Wicket 1, se c, spdg and sd.
T 4n, R 1e, Garvin County—Sec 15, Dixie Oil Co.'s Perkins 1, se c nw, dr 4065 ft.
T 4n, R 3e, Garvin County—Sec 10, Garland Oil Co.'s Strickland 1, sw c nw sw, co 2650 ft.
T 4n, R 4e, Pontotoc County—Sec 10, Marland Oil Co.'s Lawrence 1, c sw se, dr 880 ft.
T 4n, R 6e, Pontotoc County—Sec 35, Bowles et al's Rayborn 1, sw c se, sd 1320 ft.
T 4n, R7e, Pontotoc County—Sec 14, Henry et al's Johnson 1, ne c sw, dr 1090 ft. Sec 25, Ada Cement Co.'s Patter 1, nw c, dr 845 ft.
T 3n, R 1e, Garvin County—Sec 12, Magnolia Pet. Co.'s Vaughn 1, nw c sw nw, dr 4390 ft.
T 1n, R 2e, Murray County—Sec 17, Revels & McGee's M. Wolfe 1, nw c, sd 125 ft.
T 1n, R 8e, Coal County—Sec 35, W. E. McGraw et al's Patton 1, sw c se ne, sd 935 ft.
T 1s, R 2e, Murray County—Sec 27, Thompson Oil Corp.'s Freeman 1, se c, rig.
T 4s, R 1w, Carter County—Sec 33, Magnolia's Simpson 1, nw c ne nw, dr 4340 ft.
T 4s, R 2w, Carter County—Sec 13, Roxana Pet. Co p.'s Sarasota 1, se c, sand 2260-61 ft, td.
T 5s, R 3w, Carter County—Sec 2, Roxana's Frazier 1, sw c ne, sd 3445 ft.
T 5s, R 4e, Marshall County—Sec 11, Bilbo et al's Chapman 1, ne c nw ne, sd 380 ft.
T 5s, R 7e, Bryan County—Sec 26, Magnolia's Marshall 1, nw c sw nw, dr 2130 ft.
T 7s, R 3e, Love County—Sec 7, Magnolia Pet. Co.'s Askew 1, nw c sw ne, dr 2565 ft.

KANSAS

BARBER COUNTY—T 30s, R 14w, Rowland et al Pickens 1, owd, ne c nw ne, sec 27, ur 2505 ft. T 21s, R 12w, Merriman et al Winters 1, E½ sec 17, dr 2950 ft. T 33s, R 12w, Schaffer et al Boggs 1, c sw, sec 19, ur 3755 ft. T 33s R 13w, Schaffer et al Carter 1, c se se sec 2, ur 2820 ft.

BARTON COUNTY—T 18s, R 12w, Huffine & Crane Everleigh 1, c sw sw sec 6, sd 4390 ft. T 19s, R 11w, Huffine et al Smith 1, nec se ne, sec 17, fsh 3090 ft. T 20s, R 13w, Everett & Wiley Ward 1, nwc sw, sec 12, sd 3940 ft.

BUTLER COUNTY—T 25s, R 4e, Wichita Drlg Co. Joseph 1, nec se nw, sec 18, dr 2265 ft. T 27s, R 3e, La Rob Oil Co. Baysinger 1, nec sw, sec 24, rig. T 27s, R 5e, Cress, Frank et al Bryson 1, nec, sec 26, spudded and sd. T 29s, R 4e, E. Wilcox et al Holcomb 1, nec se sw, sec 21, sd 1456 ft.

CHASE COUNTY—T 21s, R 7e, Greener, Fowler et al Carson 1, nec, sec 9, sd 750 ft.

CHAUTAUQUA COUNTY—T 32s, R 8e, Roth & Faurot Hamil 1, nwc sw nw, sec 15, lcn.

CLARK COUNTY—T 31s, R 23w, Walker & Walner, Mitchell 1, swc ne, sec 16, sd 420 ft.

CLOUD COUNTY—T 6s, R 4w, Concordia Oil Co., Murdock 1, sec, sec 6, sd 3590 ft.

COFFEY COUNTY—T 22s, R 15e, Garland et al Douglas 1, nec se, sec 9, lcn. Crooks et al Douglas 1, nec se, sec 11, sd 450 ft.

COWLEY COUNTY—T 30s, R 3e, Vickers Pet. Co. Daniels 1, nwc ne, sec 3, dr 1650 ft. T 30s, R 6e, Allison & Fitzwilliams Manley 1, nec nw se, sec 20, sd 300 ft. T 31s, R 4e, Brinn et al Hughes 1, nwc sw, sec 20, D&A at 3352 ft. T 33s, R 4e, Roth & Faurot Adams 1, sec, sec 32, ts 1900 ft, 450,000 ft gas.

DICKINSON COUNTY—T 16s, R 4e, Skow & Ritchey Will 1, c nw nw, sec 2, lcn. Harwood & Winters Utek 1, swc se nw, sec 35, dr 1600 ft.

ELK COUNTY— T 29s, R 12e, Elmwood Oil

Co. & Phoenix Oil Co., Flack 1, sec, sec 6, sd 500 ft. T 31s, R 11e, Roth & Faurot Elk Falls Bank 1, nwc sw, sec 3, dry at 2338 ft, aban.

ELLIS COUNTY—T 13s, R 15w, Tatlock et al Leiker 1, nwc ne ne, sec 26, dr 2900 ft.

ELLSWORTH COUNTY—T 15s, R 10w, Valerious O. & G. Co. Maximer 1, c nw, sec 9, dr 3295 ft. T 16s, R 19w, Phil-Mac Oil Co. Gregory 1, c sw, sec 24 ur 3467 ft.

FRANKIN COUNTY—T 16s, R 18e, Smith, Trace & Fisher Owens 1, cel E½ E½, sec 17, sd 1450 ft. T 17s, R 17e, Omar O&R Co. Bush 1, sec sw, sec 25, lcn.

GEARY COUNTY—T 10s, R 5e, Brinkley et al Fawley 1, nec nw ne, sec 16, sd 2502 ft.

GREENWOOD COUNTY—T 25s, R 10e, Smalley & Bement O. Corp. Rockhill 1, nwc ne, sec 12, sd 1750 ft. T 28s, R 12e, Swanson et al Hayes 1, sec nw ne, sec 1, sd 1600 ft.

GRAHAM COUNTY—T 8s, R 25w, Gulf Coast Drlg. Co., St. John 1, owd, swc nw se, sec 27, dr 3290 ft.

JEFFERSON COUNTY—T 9s, R 19e, Northern Counties Oil Co., Edwards 1, sec nw nw, sec 13, sd 2405 ft.

LABETTE COUNTY—T 33s, R 17e, Cowell et al, Hornbeck 1, swc ne sw, sec 1, sd 1375 ft. T 35s, R 20e, Wantland et al, Lipps 1, sec nw sw, sec 5, sd 910 ft.

LOGAN COUNTY—T 14s, R 33w, Coon et al, Andrews 1, owd, nwc ne nw, sec 14, rig.

MARSHALL COUNTY—T 4s, R 7e, Marshall Oil Synd., Finn 1, nwc ne ne, sec 4, dr 2485 ft.

MARION COUNTY—T 17n R 4e, Givins et al, Ucker 1, swc ne, sec 31, skid rig. T 18s, R 4e, Skow et al, Melcher 1, c ne se, sec 20, sd 1825 ft. Reed et al, Reed 1, nwc, sec 17, td 2841 ft, pb to 2406 ft, sd. T 21s, R 1e, Sun Ray Oil Co., Lehrman 1, swc ne se, sec 1, dr 2165 ft.

McPHERSON COUNTY—T 17s, R 3w, La Mar et al, Lamar 1, sec, sec 1, fsh 2960 ft. T 19s, R 2w, Merriman et al, Clark 1, c ne nw, sec 8, chat 3007 ft, dr 3315 ft. T 20s, R 3w, Polar Oil Co., Dary 1, c nw, sec 20, spudded and sd.

MEAD COUNTY—T 33s, R 28w, Blackwell O&G Co., Lilly 1, c se, sec 9, dr 3305 ft.

MONTGOMERY COUNTY—T 31s, R 14e, Ramler et al, Faler 1, cnl ne ne, sec 31, sd 1085 ft.

MORRIS COUNTY—T 14s, R 7e, Klein et al, Barber 1, sec nw, sec 32, rig. T 16s, R 9e, Lambert et al, Southard 1, swc se, sec 22, lcn.

NEMEHA COUNTY—T 3s, R 11e, Nemeha O&G Co., Meyers 1, nwc, sec 19, sd 3050 ft.

OSBORNE COUNTY—T 9s, R 15w, Davis et al, Prather 1, sec sw, sec 30, dr 995 ft.

OSAGE COUNTY—T 15s, R 15e, Barber et al, Lease 1, c se se, sec 3, sd 260 ft. T 15s, R 16e, West et al, Bailey 1, swc ne, sec 27, sd 800 ft. T 17s, R 17e, Mull Vit Dev. Co., Neil 1, nwc ne sw ne, sec 8, sd 3736 ft.

POTTAWATOMIE COUNTY—T 9s, R 12e, Crawford et al's Steward 1, c n l se se, sec 17, rig abnd; Bratchbar, sw c se sw, sec 31, rig abnd. T 10s, R 12e, Crawford et al's St. Mary 1, sw c sec 11, dr 2290 ft.

RENO COUNTY—T 22s, R 4w, Danciger et al's Williams 1, ne c sw se, sec 6, rig.

RILEY COUNTY—T 10s, R 7e, Youker et al's Theirer 1, nw c, sec 20, dr 3028 ft.

ROOKS COUNTY—T 9s, R 16w, Keys Pet. Co.'s Rathburn 1, ne c sw, sec 14, dr 850 ft. T 10s, R 16w, Derby Oil Co.'s Kruse 1, ne c nw ne, sec 3, sd 2930 ft. Streeter & Stearns' Mattison 1, c nw, sec 28, dr 2300 ft.

RUSH COUNTY—T 17s, R 17w, Valerious O&G Co's Schreverman 1, c nw, sec 27, spd and sd.

SALINE COUNTY—T 15s, R 2w, Menter O&G Co.'s Muir 1, sw c sec 17, ur 2695 ft.

STAFFORD COUNTY — T 21s, R 11e, Harper et al's Siffers 1, owd, nw c sw ne, sec 23, dr 2936 ft.

STEPHENS COUNTY—T 33s, R 37w, Independent O&G Co.'s Jones 1, c sw, sec 31, td 3505 ft, pb to gas.

SUMNER COUNTY—T 33s, R 3w, Otstot et al's Bartlow 1, se c sec 22, sd 1850 ft. T 34s, R 2w, Gypsy Oil Co.'s Douglas 1, ne c se nw, sec 23, ts 4493-4499 ft, 16 bbls per hour. T 34s, R 3w, Jarvis et al's Wenrich 1, se c sw, sec 4, dr 3625 ft. T 34s, R 4w, Jarvis et al's Wycoff 1, sw c nw, sec 11, sd 4212 ft. T 35s,

Eighteen 500-bbl. Maloneys on Walter Wise No. 2 of Carter Oil Co., at Bowlegs.

Simple to Erect

Exclusive features of design, and our precision methods of manufacture, render MALONEY tanks remarkably simple to erect, or to take down and reset. Our patented "crimp" at seams and joints provides an offset which insures accurate fit of parts without calking. Bolt holes are placed with absolute accuracy, obviating delays and annoyance.

MALONEY material is durable Keystone Copper Steel. Our special rubber packing and our Gaso cement make all seams vapor-tight. Seams are reinforced with rigid steel channels and strips. Special 80,000-lb. bolts—30% stronger than bolts formerly used—are now furnished with all tanks. Large cleaning out plates are flush with bottoms. Tanks are painted with Maloney Special Pearl Gray Paint. Valve and deck equipment is the best obtainable.

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THE MALONEY TANK MFG. CO.

TULSA, OKLAHOMA

Distributors at All Principal Petroleum Points.

Sizes: 12 to 10,000 Barrels.

Packed in Steel-Bound Crates for Export.

Howell Aluminum "3 in 1" Vacuum Pressure Valve and Thief Hatch—The BEST and LATEST Deck Equipment—POSITIVE Safety

MADE OF KEYSTONE COPPER STEEL

MALONEY PATENTED BOLTED COPPER-STEEL TANKS

MADE OF KEYSTONE COPPER STEEL

MALONEY

ALONE!

R 1e, Otstot et al's Volker 1, nw c ne, sec 9, rig.

WABUNSEE COUNTY—T 12s, R 11e, Empire O&G Co.'s Schwalm 1, se c sec 19, fsh 3320 ft. T 13s, R 12e, Williams et al's Henderson 1, ne c sw ne, sec 15, sd 3600 ft.

WOODSON COUNTY—T 25s, R 14e, Howard et al's Riley 1, nw c sw, sec 31, lcn.

NORTHERN CALIFORNIA

Completion

Company, Well and Location	Initial Production Bbls.	Depth
SANTA YNEZ—		
San Marcos Oil Synd., No. 1.....	*	3640

FRESNO COUNTY

CLOVIS—Fresno-Madera Oil Co.'s 1, 18-12-21, dr 3900 ft.

RAISIN CITY—Fresno-United Oil Co.'s 1, 23-15-18, sd 3960 ft.

KERN COUNTY

BAKERSFIELD—Pacific Eastern Production Co.'s Union Avenue 1, oil sand 4950 ft.

BELRIDGE—Zurich Oil Co.'s 1, 18-28-22, dr out cmt 1875 ft, td 2085 ft.

BUTTONWILLOW—Milham Explo. Co.'s 2, 8-28-23, 15¼-inch cas cmt 300 ft. McAdam's Synd.'s 1, 26-29-23, dr 2395 ft.

COMANCHE POINT—Kern 29 Oil Co.'s 1, 29-31-30, sd 2240 ft.

DELANO—North American Consolidated Oil Co.'s 1, 5-25-25, co 3675 ft.

DEVILS DEN—Midway Northern Oil Co.'s 1, 25-25-18, fsh for lugs 2440 ft.

EDISON—General Pet. Corp.'s Kerwin 1, well made some oil and much water on test, td 4006 ft, will recmt.

FRUITVALE—Pacific Eastern Production Co.'s 1, 21-29-27, dr 3684 ft.

GRANITE CANYON—P. Dumal's 1, 32-27-29, lcn.

GOULD HILLS—Bomke & Ball's 1, 12-29-20, sr 1350 ft. Cymric Oil Co.'s 1, 36-28-20, dr 466 ft. Herbert Moore's 1, 11-29-30, dr 377 ft.

McKITTRICK—Lacy-Esper Pet. Co.'s 1, 18-19-22, sd 3265 ft. McKittrick Hills Oil Co.'s 1, 18-30-22, sd 3250 ft. Ozena Oil Co.'s 1, 27-29-21, co 1710 ft, td 1770 ft.

MON BLUFF—Shell's Glide 1, 3-28-28, dr 3574 ft. Union Oil Co.'s Tribe 1, 28-27-28, will dr out cmt, td 1780 ft.

N. POSO CREEK—Bruce Frame's Dominion 1, dr 1900 ft. General Pet. Corp.'s Glide 1, 21-27-28, pumped 500 bbls on initial test, shut in.

SHALE HILLS—Nelson & Mountford's 1, 18-27-19, sd 2690 ft. Oildale Oil Co.'s 1, 13-27-18, sd 560 ft.

SUNSET—Fresno-Sunmaid Oil Co.'s 1, 16-11-24, sd 4200 ft.

TEMBLOR—Fortuna Oil Co.'s 1, 28-32-13, sd 2500 ft. Jackson & Chamberlain's 1, 36-29-20, dr 267 ft. Salegna Investment Co.'s 1, 36-29-20, dr 470 ft.

TEHACHAPI-MOJAVE—C. R. Asmussen's 1, 23-11-11, sd 1510 ft. John B. Harding's 1, 5-10-10, sd 1050 ft. Crusaders Oil Co.'s 1, 21-10-10, on pumping test 2365 ft.

SANTA BARBARA COUNTY

GOLETA—Barnsdall Oil Co.'s Edwards 2, dr 1690 ft. Calofirnia-American Holding Co.'s 1, dr 1576 ft. Graham Loftus Oil Co.'s Orella 1, sd 1600 ft. J. J. Rekar's La Patera 1, dr 1875 ft.

BUELLTON—Buttram Bros.' Odin 1, dr 1793 ft.

ORCUTT—G. O. Gorham's 1, 33-10-34, lcn.

SANTA YNEZ—Elliott & Clark's 1, abn 3637 ft.

SANTA BARBARA—Twin State Oil Co.'s Modoc 1, dr 1433 ft. Channell Oil & Development Co.'s 1, dr 6000 ft.

SUMMERLAND — Summerland Oil Co.'s Becker 1, trying to locate water 3030 ft.

VENTURA COUNTY

CAMARILLO—Standard Oil Co.'s Camarillo 1, sdtr dr pipe 5715 ft.

FILLMORE—Smith Pet. Co.'s Smith 1, sd 4005 ft. Superior Oil Co.'s Sespe 1, dr 1011 ft.

HOPPER CANYON—Ruth J. Bishop's 2, rigging cable tools 200 ft.

MOORPARK—E. A. Parkford's Lloyd 1, rigging rotary 4000 ft. Shell's Berylwood 2, 8⅝-inch cas cmt 6050 ft, td 6065 ft.

STRATHERN—Shell's Strathern 1, sr 1000 ft, will set pipe.

RINCON—Bankline Oil Co.'s Permit 1, lcn. Chanslor-Canfield Midway's Hobson 1A, fsh for swab 6675 ft, td 7002 ft; Hobson 1B, swabbing sw, td 5740 ft; Hobson 1C, dr 2436 ft; Hobson 2C, dr 2450 ft; Hobson C3, dr 1955 ft; Hobson C4, rig. General Pet. Corp.'s Ferguson 1, lcn; Hobson 1A, dr 822 ft; Tomson 1, dr 550 ft. Miley Oil Co.'s H. & H. 1, tar sand 2645 ft; H. & H. 2, dr 2278 ft. Pan American Pet. Co.'s State 1, flowed 700 bbls for few days, has stopped flowing; State 2, dr 2150 ft; Fee 1, dr 2654 ft; Fee 2, dr 2540 ft; Fee 3, 13⅜-inch cas cmt 2536 ft, td 2541 ft; Fee 4, dr 2525 ft; Fee 5, lcn. Petroleum Securities Co.'s Hawkins 1, setting 16-inch cas 700 ft. Montecito Oil Producers' Cota 1, dr 3565 ft. Scott Petroleum Properties' Rincon 1, dr brown shale 1754 ft.

SANTA PAULA—Meriam Pet. Co.'s Anlauf 1, pumping 5 bbls 1334 ft. W. W. Bryant's Anlauf 1, sd 1590 ft.

SATICOY—Standard's Saticoy 1, dr 1430 ft.

SOUTH MOUNTAIN—Ring Pet. Corp.'s Converse 1, running 4¾-inch cas 3950 ft.

SULPHUR MOUNTAIN—Geis & Bradford's 1, 21-4-22, dr 2260 ft, found 300 ft oil sand.

VENTURA—Associated's Dabney-Lloyd 1, fsh for dr pipe 6990 ft. Star Pet. Co.'s Star-Canet 1A, dr 4215 ft.

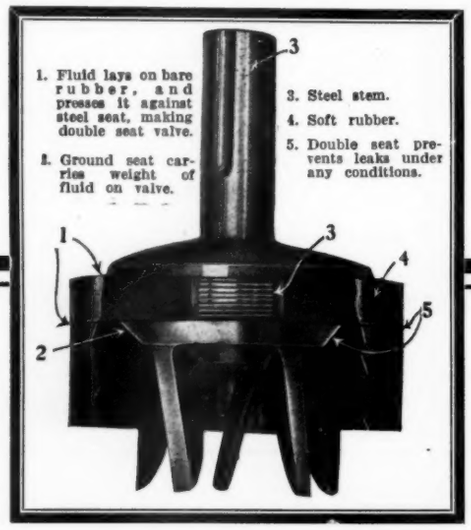
MISCELLANEOUS

COLUSA COUNTY—Continental Oil Co.'s 2, 31-18-4, dr 3950 ft.

KINGS COUNTY—Associated's 1, 12-23-18, sd 2045 ft. Bolsa Chica Oil Co.'s 1, 30-23-19, sd 3500 ft. General Pet. Corp.'s 2, 22-26-18, dr 5513 ft. Milham Explo. Co.'s 1, 2-22-17, sd 6150 ft. Monocline Dev. Co.'s 1, 7-21-21, sd 4310 ft. Hugh McPhail's 1, 13-24-18, dr out cmt 2075 ft, td 2090 ft. South Coalinga Oil Co.'s 1, 35-24-19, dr out cmt 2888 ft, td 2918 ft.

MADERA COUNTY—Fort Wayne-Madera Synd.'s 1, 22-10-17, fsh 2250 ft.

SAN LUIS OBISPO COUNTY—Miley Oil Co.'s 1, 15-29-17, dr 2216 ft. Richfield Oil Co.'s


1. Fluid lays on bare rubber, and presses it against steel seat, making double seat valve.
2. Ground seat carries weight of fluid on valve.
3. Steel stem.
4. Soft rubber.
5. Double seat prevents leaks under any conditions.
1
2
3
4
5

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Say you saw it in The OIL WEEKLY

1, 10-29-17, fsh for dr pipe 2610 ft. Union Oil Co.'s 1, 34-32-15, rig. Waklin Pet. Co.'s 1, 27-27-11, dr brown shale 2576 ft.

SAN MATEO COUNTY—Shell's Cowell 1, 8-6-5, dr 5212 ft.

SONOMA COUNTY—Shell's Murphy 1, 8-5-7, dr 1965 ft.

TULARE COUNTY—Birch Oil Co.'s 1, 13-21-26, gas showings 2860 ft, td 2875 ft. Ducor Drilling Co.'s 1, 29-23-27, sd 4160 ft. Federal Explo. Co.'s 1, 15-22-24, sd 5760 ft. J. E. Neame's 1, 24-17-24, sd 2025 ft.

SOUTHERN CALIFORNIA

Completions

Company, Well and Location	Initial Production Bbls.	Depth
YORBA—		
Petroleum Securities Co., Kraemer 1	*	3396

BOYLE HEIGHTS—Haskell M. Greene's P. A. S. F. 1, will abn 2995 ft.

CLAREMONT—Claremont Oil & Gas Co.'s 1, sd 1130 ft.

DAVIDSON CITY—California Well Drilling Co.'s Sel Amo 1, sd 7060 ft.

DOMINGUEZ—Dominguez Extension Oil Co.'s rigging cable tools 5510 ft.

EL SEGUNDO—Rider Oil Synd.'s El Segundo 1, sd 2300 ft. Southern California Drilling Co.'s Matteson 1, sd 4865 ft.

FAIRVIEW — Petroleum Securities Co.'s Fairview 1, dr 4242 ft.

GARDENA—Circle Oil & Gas Co.'s 1, sd 4130 ft.

HAWTHORNE—San Clemente Co.'s Peck 1, 6⅝-inch cas cmt 5220 ft, td 5520 ft.

HUNTINGTON BEACH—Calnan Petroleum Corp.'s S. & W. 1, sd 5105 ft. J. A. Brower's 1, 6¼-inch cas cmt 5225 ft, td 5357 ft. Duell Pet. Co.'s 1, rig. Leo. Stein's 1, sd 4145 ft.

INGLEWOOD—Alenson & Co.'s 1, sd 3500 ft. Hurst Oil Corp.'s Simons 1, sd 3740 ft.

LANCASTER—John B. Harding's La Loma 1, sd 823 ft. Otis Anderws' 1, rig.

MAYWOOD—Magnolia Pet. Synd.'s Tweedy 1, sd 2700 ft.

LYNWOOD—Securities Pet. Corp.'s Community 1, rig.

MONTEREY PARK—Monterey Park Pet. Co.'s Browning 1, dr 3160 ft.

MONTEBELLO—Rotary Air Drill Co.'s Germain 1, sd 1400 ft.

NEWHALL—W. W. Stabler's Castaic 1, sd 3410 ft. Thomason & McCoy's Canyon 1, sd 1610 ft.

ORANGE—Chas. A. Son.'s Pinkerton 1, sd 3626 ft.

PLACENTIA—Shell's Allec 1, dr 5373 ft.

POTRERO—Associated's Cypress 1, trying to locate water, td 5408 ft.

RIVERA—Associated's Patterson, oil showings 4050-4080 ft.

PUENTE HILLS—Anchor Pet. Co.'s Hudson 1, sd 2270 ft.

SAN FERNANDO—Shell's Mission 1, dr 4954 ft.

SAN JOSE HILLS—Bardeen Oil Co.'s Didier 1, sd 3255 ft, D. & B. Oil Co.'s Amar 1, sd 4380 ft, plug 2470 ft. Fuller & Gray's Sanchez 1, rig.

SEAL BEACH—George F. Getty's 1, Ocen & Fourth Sts., new lcn.

SUNSET—Olympic Refining Co.'s 1, new lcn, rig.

SAN JUAN CAPISTRANO—O. K. Carr's Forster 2, sd 4200 ft.

TELEGRAPH CANYON—Quadra Pet. Co.'s M. J. M. 1, sd 4210 ft.

YORBA—Buttram Pet. Corp.'s 1, rigging up. Petroleum Securities Co.'s Kraemer 1, abn 3396 ft. Standard's Y. L. W. 1, dr 4900 ft.

WATTS—Southwest Pet. Corp.'s Ramsaur 1, sd 4300 ft.

WATSON—White-Behr Oil Co.'s Watson 1, dr 4007 ft.

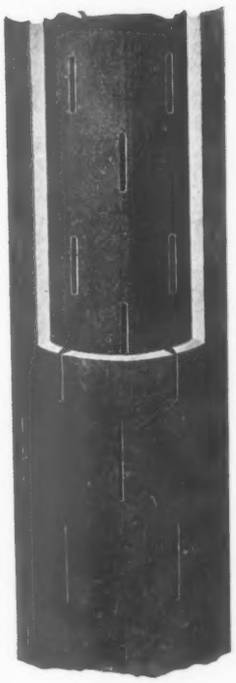
MISCELLANEOUS

RIVERSIDE COUNTY—Hemet Pet. Corp.'s Ward 1, dr 1760 ft. Spdinletop Oil Synd.'s Salton 1, will resume dr 3177 ft. Trabuco Oil Co.'s 1, dr 2916 ft.

SAN BERNARDINO COUNTY — Colton Terrace Oil Co.'s 1, dr 1636 ft. Como Oil Co.'s Cajon 1, sd 2846 ft. Del Rosa Oil Co.'s 2, sd 915 ft. H. & P. Oil Co.'s Ranger 1, sd 2140 ft. Hesperia Oil & Gas Co.'s 1A, test-

BAASH-ROSS SLOTTED SCREEN PIPE

Retains a Greater Percentage of it's Original Bending and Pulling Strength



It is now quite generally conceded that bending is the most detrimental strain on screen pipe in the hole, and is caused principally by shifting formations, boulders and cave-ins.

Baash-Ross Slotted Screen Pipe successfully withstands these bending strains due to the fact that the slots are undercut, longitudinal, and in staggered rows—an arrangement which removes a minimum amount of metal and retains the highest percentage of strength of the original pipe.

Baash-Ross Screen Pipe is slotted to meet individual requirements and can be furnished with any draining capacity required. It is easy to set and pull, and can safely be rotated or spudded in.

The cheapest, safest and best screen pipe to use.

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THE DIAMOND DRILL CARBON CO.
59 PARK ROW, NEW YORK, N.Y. CABLE ADDRESS, CHEDOTAN, N.Y.

ing plug 2802 ft, td 3312 ft. Western Pacific Oil Co.'s 3, dr 3006 ft.

SAN DIEGO COUNTY—Cardiff Oil Corp.'s Turner 1, sd 2800 ft. Davenport Oil & Gas Co.'s 1, dr 150 ft. Stanley S. Turner's Baker 1, dr 182 ft.

MOUNTAIN STATES

MONTANA

BIG HORN—Selig Oil Co., 1, se 21-6s-35, dr below 700 ft.

CARBON COUNTY—Ohio Oil Co., Northern Pacific 1, 11-75-21e, dr at 3010 ft. Book et al, Moore 1, 13-17-23, wtg supplies, td 850 ft. Atlantic Oil Co., 3, 20-7s-24e, cas cmtd at 948 ft.

CASCADE—Lone Star, McLean 1, 12-21n-3e, sd 100 ft.

CHOTEAU—Geraldine O. & G. Co., sw ne 1-21-11e, rigged, ready to spud.

FERGUS—Melton Corporation, Fenhold 1, 24-21-17, dr below 2230 ft. Mineral Research Co., 1, 13-17-23e, sd 843 ft for winter.

FLATHEAD—Flathead Pet. Co., Reservation 1, se 35-23-22w, rig.

GLACIER—Rimrock Oil Co., 29-35-5w, rig up.

HILL—A. H. McFarland, sw 15-30-13e, sd at 100 ft. Gad-Hamilton et al, Goldstone 1, sw 25-36-9e, rig. Equitable Oil Co., Perkins 1, 34-33-12e, ¶4 at 3330 ft.

LIBERTY—Chester Oils, Inc., Laird 1, 31-37n-6e, bottomed at 2020 ft. Sunburst O&R Co., Disotell 1, 10-37n-5e, bottomed at 2400 ft.

MADISON—Madison County Oil Co., 1, nw 17-7e-1w, sd 1700 ft.

MUSSELSHELL—Manhattan Oil Co., ne 24-7-24e, sd 60 ft. McElwain Oil Dev. Assn., 2-11-22, rig.

RICHLAND—Community Drlg. Co., Pioneer 1, rig to drill deeper from 2600 ft.

ROOSEVELT—Pioneer O&G Co., 1, se 35-27-51e, sd 1590 ft.

PONDERA—Embar Drlg. Co., 5-27-3w, abn 1919 ft. S. C. Ferdig et al, 8-27-4w, rig. Continental Dev. Co., sw 19-27-3w, fsh 1000 ft.

PHILLIPS—Big Dome Oil Co., Bloomberg 1, ne 1-32-32e, set 12-in at 520 ft and dr ahead.

SWEETGRASS—Shoshone Consolidated, nw 23-2n-15w, cas trouble at 2100 ft.

TETON—Dilling et al, ne 9-25-1e, fsh at 1408 ft. Continental Dev. Co., Ritmoure 1, 8-27-5w, bottomed at 900 ft. Elliot et al, Bannatyne 1, 19-26-1e, abn 1700 ft. Craig-Speer, McCutcheon 9-23-2w, spd and sd, bad weather.

TOOLE—Kevin-Flathead Oil Co., 1, ne 27-36n-2e, sd 2200 ft. Zenith-McDonald, Lowey 1, 35-36n-1w, bottomed at 2135 ft. Sunburst O&G Co., Grandview, 10-34n-32, rig. Madeline Oil Co., Swenson 1, 33-35-4w, bottomed at 550 ft.

WYOMING

BIG HORN—Agate Oil Co., ne 13-51-92, testing, will probably abn. Utah Southern Oil Co., 3, 29-56n-97w, straight reaming at 2345 ft. Wisconsin-Himes, 9-54-94w, contract completed to 571 ft.

CARBON—Graybeal Synd., 16-28-91, sd for the winter at 4380 ft. Pacific American Oil Co., 31-25-91w, lcn.

CONVERSE—A. E. Tylee, ne 8-32-72, sd for repairs. Criterion Oil Co., Irvine 1, 5-31-70, showing at 3581 ft. John Ackard, McKinley 1, 21-31-69, suspended for the winter at 3000 ft.

FREMONT—Producers & Refiners, Muskrat 1, 34-34-92, dr 1700 ft. Texas Production Co., Alkali Butte 1, 1-33-92, dr below 1020 ft. Zola Oil Co., Corrk's Gap 1, 25-27n-93w, sd for winter at 3750 ft. Iowa-Wyoming Inv. Co., 30-1s-2e, attempting water shutoff at 1500 ft.

JOHNSON—Fairway Oil Co., Crazy Woman 1, 7-47-82, no report. Tarrant Synd., 2, 17-46n-82w, ur at 3625 ft. Murphy & Grove, 10-41n-80w, sd 800 ft, hole full of water.

LINCOLN—Fontenelle Oil Co., 1, ne ne 1-24n-1113w, dr below 1125 ft. California Co., Snyder Basin 1, 11-29n-115w, standing cmtd at 1117 ft.

NATRONA—North Casper Creek O&G Co., se 1-36-82, sd. Combs Inv. Co., 12-39-78, dr below 500 ft.

NIOBRARA—Penn-West. Pet. Co., 13-35n-62w, will resume in the spring, td 800 ft. Hollingsworth Bros., 17-39-79, fsh tools at 1710 ft.

PARK—Union of Calif., Taylor 1, 22-47-101, dr 3314 ft. Fred G. Ostland, Hoodoo Ranch 1, 23-51-101, sd 1740 ft. Honolulu Oil Corp., Foru Bear 1, 29-48-103, fsh 2845 ft. Ralph Arnold & Chas. Mau, nw 25-58n-98w, dr. Ydoc Oil Co., ne 6-51n-101w, dr 895 ft. Honolulu Oil Corp., Pitchfork 1, 14-48n-102w, lcn. Hoodoo Oil Co., 36-51-101, dr 155 ft, bad hole.

PLATTE—Walter Adams, Trustee, sec 13-25-66, dr 1700 ft.

SWEETWATER—Boar's Tusk Oil Co., 16-23-104, artesian water at 1450 ft. Prairie O&G Co., Tucker 1, 18-13-99, sd for winter at 150 ft. P&R Marland of Colo., 26-20-104, sd for winter at 485 ft. Tower Petroleum Co., 1, 6-14n-103w, dr 300 ft.

WASHAKIE—P&R Corp., Tensleep 1, 13-46-89, dr ahead from 3260 ft.

WESTON—Unknown persons, ne 15-44-64, dr below 300 ft. Gose Synd., 1, ne 28-47n-65w, attempting to pull 4¾-in cas at 485 ft. Uinta Oil & Dev. Co., Kastor 1, 21-15n-120w, dr below 1300 ft.

SOUTHWEST TEXAS

DUVAL COUNTY — Associated Oil Co.'s Sutherland 1, dr. R. Driscoll's 8, sec 23, prod. ¶45 at 2433 feet. Humble's Walsh 7, sec 18, testing at 4335-4352 ft. Houston Oil Co.'s Koehler 4 and 5, dr. Benavides 2, 3 and 44, dr, Benavides 2, prod ¶30 at 154[illegible] 1553 ft. O.. W. Killam's Lopez 3, 4, 5 and 6, dr. National Oil Co.'s Ball 1, lcn. O'Hern & Seacord's Schlessinger 1, dr.

JIM HOGG COUNTY—Alworth, Stevens & Hill's 23, lcn. Andrews Pet. Co.'s M. S. Bank 1, dr; Palacious 1, dr. Alworth Brothers' Garcia 10, set cas at 1011 ft. Bagger & Maddox's 1, 2 3 and 4, sur 81, dr. Miller Shaw's Jones 1, dr. Moody Oil Corp.'s 1, blk 29, dr. Paesano Oil Co.'s 1, Las Vivorcitas Grant stdg at 2766 ft. Simms Oil Co.'s Leyendecker 1, dr. A. & M. Stacy's 1, dr.

WEBB COUNTY — Associate[illegible] Carson's Webster 2, dr. J. M. Basharaus' Espjo 1, dr. F. J. Bates' Bruni 1, stdg at 2005 ft. Cole Pet. Co.'s 36, abnd at 5525 ft; 50-A, dr; 50B, blk 7, Cuellar grant, dr 2518 ft; 51, blk 4, sec 412, setting up. Houston Oil Co.'s Benavides 1, dr; Cuellar 1, dr 1250 ft. O. W. Killam's Puig 1, dr. T. P. Morgan's 2, blk 23, sec 385, dr. Nelson Drilling Co.'s Puig 1, dr. Newton Drilling Co.'s Bruni 2, dr. Rio Grande Oil Co.'s 1, Santo Thomas grant, dr. Serna-Forrest's Benavides 1, blk 2, sec 2272, set surface cas at 60 ft. W. O. Wheatley's Reiser 2, blk 8, sec 1617, spd in.

ZAPATA COUNTY—Henne, Winch & Farris 1, Martinez 1, dr. Hill et al's 1, Villa Grant, dr.

WEST TEXAS

Completions

Company, Well and Location	Initial Production Bbls.	Depth
CRANE COUNTY—		
Texas Dev. Co., Cowden 1	*	4395
CROCKETT COUNTY—		
R. R. Penn et al, Powell 1	*	2765

ANDREWS COUNTY — A. G. Carter & Henry Zweifel's Cowden 1, elev 3156 ft, top salt 1575 ft, dr 4985 ft. J. S. Cosden et al's Bedford-Ratliff 1, sd 4116 ft. Calvin-Best et al's Bedford-Ratliff 1, elev 3194 ft, top salt 1610 ft, dr 3880 ft. Deep Rock Oil Co.'s Harris 1, elev 3173 ft, dr 1145 ft. C. B. McKennon et al's Means 1, elev 3144 ft, sd 1680 ft.

BORDEN COUNTY — Marland Oil Co.'s McDavid 1, sd 1340 ft.

BREWSTER COUNTY—Cowden-Bowser et al's Jackson-Harmon 1, rig. J. M. Hickey et al's Jackson-Harmon 1, dr 675 ft. Van McPhail et al's McIntyre 1, sd 1125 ft. Mid-Kansas O&G Co.'s Turney 1, sd 2350 ft. Reese & White's Kimball 1, sd 1305 ft. Wilcox-Anderson et al's Gage 1, dr 1855 ft.

COKE COUNTY—Brown et al's Foster 1, sd 2250 ft. Danciger O&R Co.'s Byrne 1, sd 3130 ft. Lipan Oil Co.'s Conner 1, sd 3315 ft; Rawlings 1, sd 2736 ft.

CONCHO COUNTY — Exploration Co.'s Hartgrove 1-A, co 760 ft. Lawson & Parks' Schultz 1, elev 1731 ft, dr 1180 ft.

CRANE COUNTY—Crane County Dev. Co.'s Mosley-Brookfield 1, dr 850 ft. Gulf Prod. Co.'s Waddell 3, top salt 1165 ft, dr 1625 ft.

CROCKETT COUNTY—J. S. Cosden et al's Paul Perner 1, sd 615 ft. Corbett & Gill's University 1, dr 2320 ft. W. W. Donnelly et al's Shannon 1, sd making gas 1664-80 ft; Shannon 2, lcn; Massie 1-A, sd 305 ft; Todd 1, lcn. Jas. Kelly et al's Todd 1, sd after shot, td 2605 ft. Osage Oil Corp. et al's Halff 1, (Yates field) gauge 160 bbls pipe line oil first eight minutes at 1015-50 ft. C. E. Simmons & Co.'s Halff 1, elev 2152 ft, top salt 440 ft, cmt cas 865 ft, td 868 ft. World Oil Co.'s Schneeman 1-B, elev 2663 ft, dr by tools 2330 ft.

CULBERSON COUNTY—Deep Rock Oil Co.'s T&P Fee 2, sd 1210 ft; Seay 1, spd and sd. Jas. Gardner et al's Radford 1, sd 610 ft.

JEFF DAVIS COUNTY — Humble O&R Co.'s C. Flores 1-A, dr 2875 ft. E. L. Smith Oil Co.'s Means 2, sd 2400 ft.

ECTOR COUNTY—J. S. Cosden & The Texas Co.'s Connell 5, elev 2843 ft, top lime 3375 ft, dr 3785 ft.

FISHER COUNTY — Cranfill-Reynolds' Young 1, dr 2505 ft. Ideal Oil Co.'s Jameson 1, sd 3440 ft. Marland & Vacuum Oil Co.'s Lagow 1, co 3500 ft. The Texas Co.'s Stephens 1-A, elev 1937 ft, dr 3155 ft.

GARZA COUNTY — Gulf's Swenson 1-A, elev 2492 ft, top salt 495 ft, top lime 2075 ft, dr 2580 ft.

GAINES COUNTY—Westheimer & Daube's Forbes 1, sd 4900 ft.

GLASSCOCK COUNTY—Marland & Texon's Settles 1, top big lime 2030 ft, dr 2040 ft.

TOM GREEN COUNTY—Cox et al's Llano 1, sd 470 ft. Fitzgerald & Taliaferro's Bennett 1, dr 1715 ft. Haubelt et al's Johnson 1, sd 650 ft. Marland Oil Co.'s Johnson 1, dr by junk 2830 ft; Johnson 1-A, dr 2295 ft. Tulsa Oil Co.'s Adams 1, sd 1020 ft.

HOCKLEY COUNTY—World Oil Co.'s Ellwood 1, elev 3363 ft, sd for rotary 1450 ft.

HOWARD COUNTY—Bristow & Merrick's Hooks 4, co after shot, hfo 1849 ft; Roberts 1, spd and sd. The California Co.'s Fisher 1, elev 2623 ft, top lime 3065 ft, cas trouble 3783 ft. Coyle-Concord Oil Co.'s Roberts 1, co after shot 1898 ft; Roberts 2, co after shot 1875 ft; show oil and sd 3320-25 ft. F. H. E. Oil Co.'s Roberts 3, dr 700 ft. Dixie Oil Co.'s Clay 1, Roberts 1-C, dr 1755 ft; Roberts 1-D, dr 1010 ft. Gulf Prod. Co.'s Chalk 4, dk. Godley O&G Co.'s Hooks 2, cas trouble 1750 ft; Hooks 3, rig. Henshaw & Co.'s Settles 1, sd 1900 ft. Lee & Neely's H. Hyman 1, sd 1440 ft. Lockhart & Co.'s Roberts 1, rig. Magnolia Pet. Co's Kelly-Chalk 9, dr 1310 ft; Mary-Chalk 9, dr 890 ft; Sarah Hyman 4, sp; Roberts 2, dr 510 ft; Roberts 3, 4, 5 and 6, rigs; Roberts-Magnolia 1, rig. Marland Oil Co.'s Clay 1-E, elev 2662 ft, sr 3563 ft; Richardson 1, elev 2359 ft, top salt 870 ft; dr 2270 ft. Marland & Texon's Connally 1, sr 4070 ft; Settles 2-A, rig. Marland & F. P. Zoch's Jones 1, top salt 970 ft, sd 2400 ft. Mays & Nixon's Flowers 1, dr 1390 ft. Miley Oil Corp. & Marland's Read 1, sp and sd. Owen-Sloan et al's Roberts 1-A, dr with 600 ft oih at 2570-90 ft; Roberts 2 and 3, lcns. Peer Oil Corp.'s Read 1, sr 3215 ft. Schermerhorn Oil Co.'s Roberts 1, stdz 1931 ft; Roberts 1-A, spd and sd. Sprague Oil Co.'s Roberts 1, spd and sd. Sun Oil Co.'s Settles 1, rig. Sweeney & Henry's Chalk 2, ur 730 ft; Chalk 5, dr 1430 ft. Ward Oil Co.'s Roberts 1, cmt cas 1675 ft. Weekly Oil Corp. et al's Roberts 1, rig.

HUDSPETH COUNTY—Lockhart & Co.'s Moore 1, sd 905 ft; Gardner-Mosley 1, sd 975 ft.

IRION COUNTY—F. E. Webb et al's J. M. Nutt 1, sp and sd.

JONES COUNTY—E. P. Campbell et al's Herndon 1, sd 3009 ft. R. F. Garland & Co.'s Glynn 1, sd 2430 ft. Hutson-Weaver's Smith 1-A, sd 1980 ft. Phillips Pet. Co.'s Vestal 2, dr 1215 ft. W. G. Stough et al's Bennett 1, sd 800 ft; Willis 1, sd 1740 ft. Swensondale Oil Co.'s Canton 1, sd 3315 ft.

KING COUNTY—Humble's Pitchfork 1, dr 3280 ft. Pattison et al's Patton 1, fsh 3410 ft.

LOVING COUNTY — Deleware Oil Co.'s Lockhart-Ramsey 1, lcn.

MENARD COUNTY—May & Clark's Callan 1, dr 230 ft. Renfroe et al's J. Davis 1, lcn.

MIDLAND COUNTY—Shoup et al's Parks 1, lcn.

MITCHELL COUNTY—Paul Teas et al's A. C. Mills 1, dr 615 ft.

NOLAN COUNTY — John Winemiller Corp.'s Arledge 1, fsh 1900 ft.

PECOS COUNTY—Geo. H. Anderson et al's

Sherbino 1, dr 490 ft. Buell-Hagan's Pryor 1, lcn. Cummings et al's Blackstone-Slaughter 1, sd 2528 ft. Crude Oil Co.'s Pecos River 5, dr 565 ft; River 8, sp; River 11, sd 915 ft. Day Bros. & McKnight's Yates 1, elev 2213 ft, top salt 440 ft, sd 895 ft. Douglas Oil Co.'s Sellman 2, rig. Everett et al's J. Fields 1, sp and sd. Gibson Oil Corp.'s Russell 1, dr 230 ft. Henshaw & Co.'s Corder 1, set cas 850 ft; Sweatt-Hinyard 1, elev 2770 ft, dr 2320 ft. Kershaw & Livingston's Cannon 1, cellar dug. Kirby Pet. Co. & Edson Pet. Co.'s Harral 1, top salt 1005 ft, dr 2305 ft. Robert Lee et al's Parker 1, rig. Mid-Kansas O&G Co.'s Pryor 1, rig. Mid-Kansas & Transcontinental's Smith 2, dr 380 ft. Moody Corp.'s Corder 1, dr 995 ft. Olean Pet. Co.'s Harral 1, dr 3040 ft. Oregon Oil Corp.'s Yates 1, machine. B. J. Spikes et al's Brown 1, sp and sd. Transcontinental's Blackstone-Slaughter 1, elev 3539 ft, dr 3760 ft. World Oil Co.'s M. Cerf 1, elev 3435 ft, dr 260 ft; Kloh 1, elev 2810 ft, rig.

REAGAN COUNTY — Camp & Henshaw's University 1, elev 2772 ft, top salt 1130 ft, dr 2115 ft. Skelly Oil Co.'s University 1, elev 2895 ft, top salt 1340 ft, sd 2795 ft. J. T. White et al's Shafner-Sterling 1, sd 905 ft.

REEVES COUNTY—The exploration Co.'s A. A. Kinney 1, dr 1305 ft. D. R. Thompson's et al's Eddins 1, fsh 4170 ft. Grisham-Hunter Corp.'s Rathage-Conner 1, rig. World Oil Co.'s A. L. Duff 1-A, elev 2774 ft, co after shot, td 4514 ft.

RUNNELS COUNTY—Empire Gas & Fuel Co.'s Gray 1, dr 2270 ft. Gibson-Johnson's Harris 1, lcn; Serratt 1, sp and sd. Kenwood Oil Co.'s Talley 1, sd 1720 ft. Noble O&G Co.'s et al's Simms 1, sd 3506 ft. Henry B. May et al's Schneider 1, elev 1666 ft, sd 1075 ft. Miles Oil Co.'s Lawhon 1, sd 2250 ft; Chas. Ray 1, dk. Royal Pet. Co.'s Willingham 1, rig. Swensondale Oil Co.'s Werner 1, elev 1803 ft, sd 1850 ft. Watchorn O&G Co.'s King 1, dr 1705 ft.

SCHLEICHER COUNTY—Thos. Gray et al's Robinson 1, co 3090 ft.

TAYLOR COUNTY — A. J. Brown Prod. Co.'s Henslee 1-A, elev 2010 ft, water trouble 2310 ft. Owen-Sloan et al's Latimer 1, fsh 2605 ft. Roeser-Pendleton Inc.'s Butman 1, co 2945 ft. Gilbert Johnson et al's Brown 1, sd 835 ft.

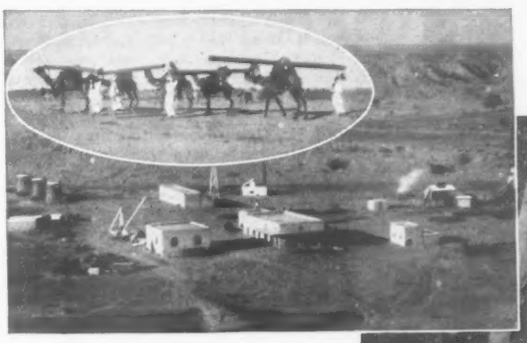
TERRELL COUNTY—Deep Rock Oil Co.'s Noelke 1, rig. Humble O&R Co.'s University 1, spd and sd. Milham Corp.'s Bassett 1, sd 1025 ft.

UPTON COUNTY—Curtis et al's Giddings 2, sd 630 ft. Southern Crude's Hobbs 1, dr 2540 ft. The Texas Co.'s Cordova 1, sec 23, elev 2576 ft, top lime 1948 ft, dr 2335 ft.

VAL VERDE COUNTY—Magnolia's Whitehead 1, dr 5450 ft. O. O. Owens et al's Henry Mills 1, dr 3830 ft. W. B. Thraves et al's Wilson 1, spd and sd.

WARD COUNTY—Selby et al's Dooley 1, rig.

WINKLER COUNTY—Amerada Pet. Corp.'s J. B. Walton 1, elev 2833 ft, fsh tools 2409 ft. Atlantic Oil Prod. Co.'s Grisham-Hunter 2, dr 2800 ft; Grisham 3, top salt 1315 ft, dr 2180 ft; Grisham 4, rig; Grisham 1-C, dr 2560 ft; Grisham 1-E, dr 2355 ft; Hendricks 1, flowing 246 bbls daily and fsh 2830-2936 ft; Hendricks 1-D, flowing 2855 bbls oil at 2870-3012 ft; Hendricks 2-D, dr 2755 ft. Atlantic & J. D. Collett's Hendricks 1-F, dr 885 ft. Arizona Mining & Eng. Co.'s Hendricks 1, spd and sd. V. T. Bolin & Co.'s Brown 1, spd and sd. California Co. & Cranfill's Bashara 1, sd 3503 ft. Cranfill-Reynolds' Hendricks 1-B, dr 2690 ft; Hendricks 1-C, dr 745 ft. Eastland Oil Co.'s Hendricks 1, making O&G, dr 2715 ft. Gulf's Hendricks 2, rig; Hendricks 8, dr 420 ft; Hendricks 9 and 10, rigs. Humble O&R Co.'s Grisham-Hunter 1, dr by junk 2763 ft; Grisham 3, dr 2820 ft; Grisham 5, dr 870 ft; Hendricks 2-B, rig; Indepndent O&G Co.'s Grisham 2, flowing 530 bbls oil daily, fsh 2815 ft; Grisham 3 and 4, lcns; Grisham 5, dr 315 ft; Grisham 6, dr 330 ft; Grisham 7, sp; Grisham 8, rig; Grisham 1-B, cmt cas 2315 ft; Grisham 2-B and 3-B, rigs. Landreth Prd. Corp. & Roxana's Hendricks 1-A, fsh 3013 ft; Hendricks 2-A, dk; Hendricks 3-A, dr 900 ft. Liner Drlg. Co.'s Campbell 1, sp and sd. Llano Oil Co.'s F. B. Armstrong 1, lcn. Llano & Roxana's Scarborough 2, lcn. Magnolia Pet. Co.'s Hendricks 3, dr 2515 ft; Hendricks 4, cmt cas 2494 ft;

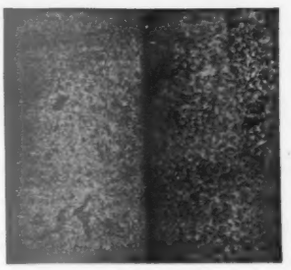


At left: Sullivan Diamond Drill in Punjab, India.

Below: Sullivan Diamond Drills exploring for petroleum in British North Borneo.

In Borneo and India

Sullivan Diamond Drills Bore for Oil



Sarawik Oil Fields, Ltd., were operating in British North Borneo. Formations were difficult to test so they bought a Diamond Drill. The good cores obtained demonstrated the superiority of diamond drilling over other methods; and the company bought eight more Sullivan Diamond Drills.

The Whitehall Petroleum Company transported a Sulivan Diamond Drill into Central India, largerly via camel back, to take over a hole which had been drilled to 4400 feet. The diamond drill started in the hole at five inches and within three months time completed it at 6007 feet, finishing at four inches. 95 per cent of core was recovered.

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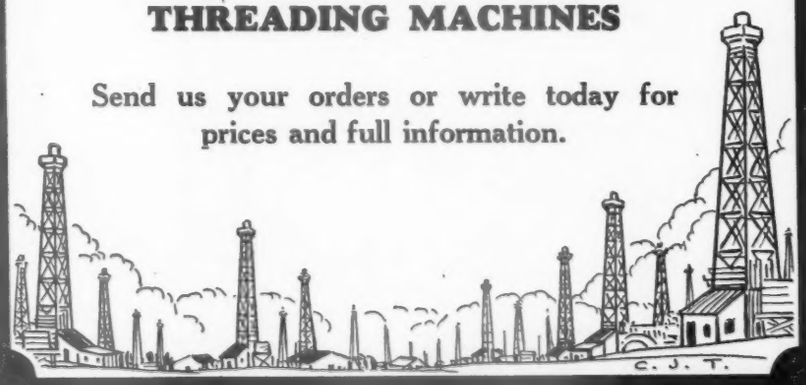

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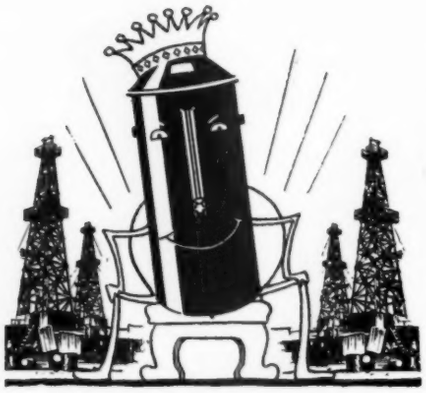

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Hendricks 4, cmt cas 2494 ft; Hendricks 5, dr 755 ft; Hendricks 6, rig. Murchison Oil Co. & Cranfill Bros. Oil Co.'s Grisham 2, 4 and 1-B, lcns; Grisham 3-B, cmt cas 2427 ft; Grisham 4-B, co 2846 ft. Joe Maxwell & Luther Turman's Hendricks 1, sd storage, 2879 ft; Hendricks 2, top lime 2452 ft, sd, making gas 2865 ft; Hendricks 3, top lime 2480 ft, sd 2585 ft; Hendricks 4, dr 250 ft; Hendricks 5 and 6, lcns; Hendricks 7, dr 1000 ft. Republic Prod. Co.'s Grisham 2-A, rig; Grisham 1-B, sec 41, sd storgae 2008 ft; Grisham 2-B, dr 2585 ft. Roxana Pet. Corp.'s Grisham 1-A, flowing 955 bbls oil, dr 2817 ft; Grisham 2-A, rig; Hendricks 1-B, sec 29, fsh bailer 2960 ft; Hendricks 2-B, dr 215 ft; Hendricks 3-B, rig. Hendricks 2-C, cmt cas 2536 ft; Hendricks 3-C, dr 715 ft; Hendricks 4-C, dr 430 ft; Hendricks 5-C, sd 320 ft; Hendricks 1-D, dr 2635 ft; Hendricks 2-D, sp. Sheldon & Burden's Hendricks 1, elev 2806 ft. top lime 2610 ft, dr 2660 ft. Southern Crude & R. A. Westbrook's Grisham 2-A-T-89, cmt cas 2301 ft; Grisham 3-A-T-89, cmt cas 2352 ft; Grisham 4-A-T-89, rig; Grisham 2-B-T-88, sec 4, cmt cas 2659 ft; Hendricks 1-C-T-88, sec 28, fsh 2869 ft; Hendricks 2-C-T-88, flowing 1440 bbls oil, dr pay 2805-70 ft; Hendricks 3-C-T-88, dr hfo at 2795-2899 ft; Hendricks 4-C-T-88, cmt cas 2586 ft; Hendricks 5-C-T-88, cmt cas 2528 ft; Hendricks 6-C-T-88, cmt cas 2528 ft; Hendricks 7-C-T-88, cmt cas 2435 ft; Hendricks 1-G-T-88, lcn; Hendricks 1-I-T-88, dr 2095 ft; E. G. Cummings 1-T-90, dr 275 ft. Southern Crude & Dixie Oil Co.'s Grisham 1-A-3-T-68, fsh tools with hfo 2740 ft; Grisham 2-A-3-T-68, sd storage 2288 ft; Grisham 3-A-3-T-68, fsh tools in gas pay 2400-20 ft; Hendricks 1-A-3-T-67, sec 4, sd 3072 ft; Hendricks 2-A-3-T-67, sd storage 2646 ft; Hendricks 1-B-T-67, dr lime 2715 ft; Hendricks 5-C-T-67, dr 1700 ft; Hendricks 2-F-T-67, dr 1540 ft; Hendricks 3-F-T-67, dr 570 ft; Hendricks 4-F-T-67, dr 500 ft. The Texas Co.'s (was Pure) Grisham 2, flowing oil dr pay 2657-80 ft; Grisham 3, dr 2445 ft; Grisham 1-B, sec 34, sr 2722 ft; Grisham 2-B, flowing oil, sd in pay 2808-66 ft; Grisham 3-B, sd making gas 2830 ft; Grisham 4-B, dr 280 ft; Grisham 1-C, rig. Texon Oil & Land Co.'s Grisham 2-A, fsh tools in gas pay 2725 ft; Grisham 3-A, cmt cas 2140 ft; Grisham 1-B, sec 45, dr 2315 ft; Grisham 2-B, cmt cas 2506 ft. White Eagle O&R Co.'s Leck-Collins 1, fsh 3260 ft.

North of Long Beach

Long Beach, Calif.—A. A. Craig et al have located a well on section 13-3-13, a few miles north of Long Beach, and will start operations immediately. The test is located one and one-half miles south of the Magnolia Petroleum Syndicate's wildcat, which was drilled to 4450 feet before mechanical troubles forced a shutdown. The new well is four and one-half miles east of the Rosecrans field and exactly the same distance northeast of the Dominguez field.

Bakersfield.—Additional oil and gas showings have been encountered by the Pacific Eastern Production Company in its Union Avenue 1, near this city. The well is now drilling below 4800 feet, after having failed to produce at 4393 feet. The well startled the petroleum industry in California several months ago by showing every evidence of becoming both an oil and gas producer. It flowed a large quantity of gas and sprinkled oil for several days. After a series of difficult repair jobs, the company drilled the well deeper without results. The hole was plugged back to 4393 feet with no better luck.

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Summerland Persists Despite Operating Difficulties

Field on edge of Pacific Ocean has 150 shallow wells producing small quantities of heavy oil under methods of many years ago

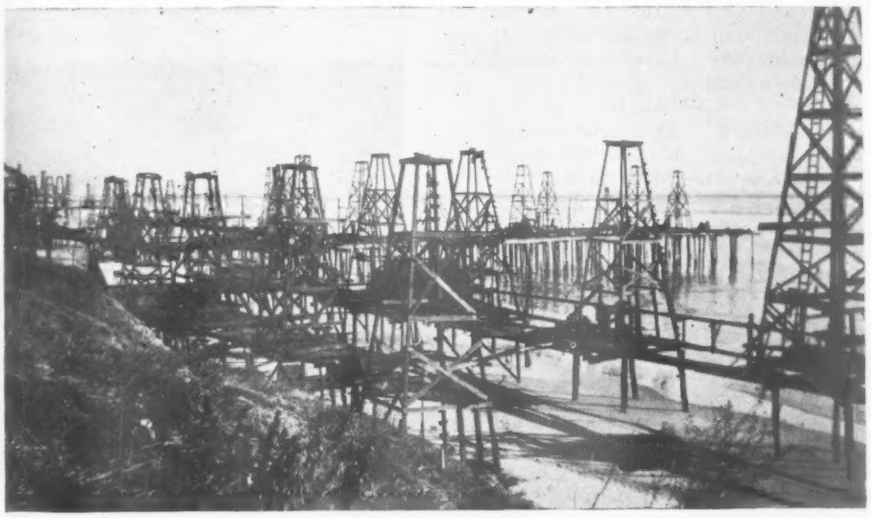
By BRAD MILLS
Staff Representative

THE most unusual oil field in California, and in many respects the oddest in the world, is located near the little town of Summerland, where about 150 shallow wells are producing heavy oil from a monocline which lies almost entirely in the Pacific Ocean. Many wells are producing along the edge of the beach, but the best producers have been drilled from a few feet to more than 300 feet out in the ocean. Unlike the Gulf and Atlantic coasts, the water becomes deep only a few yards from the beach, making it practically impossible to build supports for derricks any great distance from shore.

The Summerland field was discovered in 1887. Oil was seeping from the ground near the beach line and the first well drilled disclosed a shallow oil sand. The early tendency was to drill a short distance from the ocean, but it was soon learned that the monocline ended less than 300 feet from the shore line. The beach was drilled, with some success, but it was not until wells were put down several hundred feet from the beach that the best production was secured. Wooden piers about 10 feet above mean high tide were erected, row after row, and light derricks for cable tools were built at frequent intervals.

The development of the field was comparatively slow, due to the treacherous ocean drilling and the expense of constructing satisfactory piers. The wells came in with a very small initial production, making it necessary to have a steady outlet for the oil before the wells were completed. Peak production was reached in 1899, when a daily average of 700 barrels was recorded.

The situation in the little field has reversed itself and the demand for the heavy oil is far greater than the supply. The crude runs from 12 to 16 gravity and is unusually good road oil after the kerosene is removed. There is no gasoline in the oil. A refinery operates in the field, and of late years it has been necessary to ship in large quantities of heavy oil from other fields to keep the plant in operation.

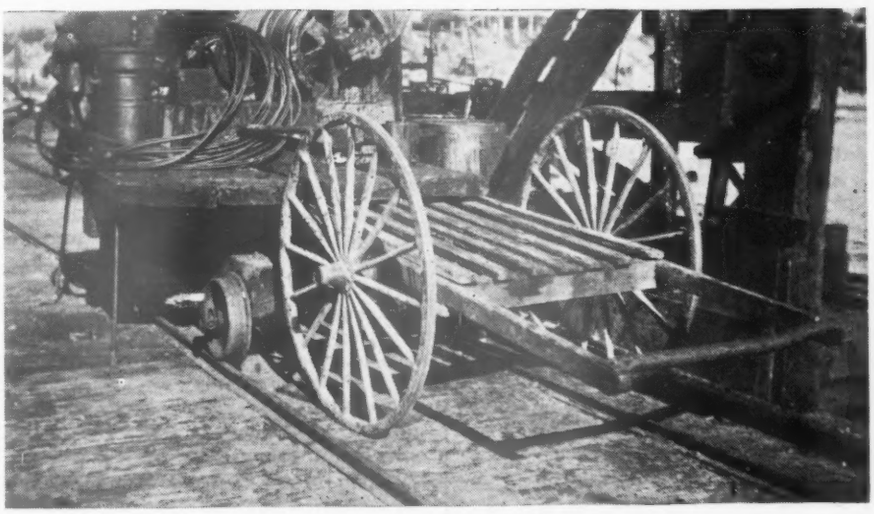


WEST END OF SUMMERLAND, CALIFORNIA FIELD

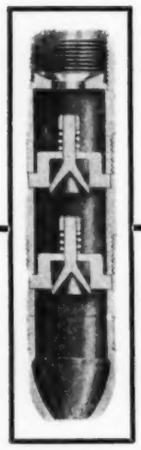
Primitive Methods

Unlike the important fields of California, the same methods are employed at Summerland as were used 20 years ago. As the average production per well is only one barrel, elaborate machinery would be out of place from an economical standpoint. Very few wells have been drilled during the past three years. Small cable tools are used and rickety pump jacks are hooked up in all sorts of odd combinations.

The pulling outfit used by one of the operating companies never fails to attract the attention of the hundreds of visitors to the field. It consists of an improvised electric outfit mounted on a little hand car, which is easily moved on a track from one part of the pier to another. The pumper who has been accustomed to seeing a good stream of oil pouring from the flow line probably would be pulling the rods from the Summerland wells in rapid order. As the wells pump only from one-half to three barrels daily, the yield per stroke is extremely small. Hand pulling outfits are in evidence along the piers, also. Several companies are operating in the field built on stilts, and they certainly don't overlook any methods calculated to lessen overhead. There is a distinct touch of Pennsyl-



PULLING OUTFIT USED BY ONE OF THE OPERATORS IN SUMMERLAND FIELD



You'll find improvements which DEcrease trouble and INcrease satisfaction in Smith's IMPROVED—

Set Shoes

1 Removable wash ring is beveled to make closer connection.

2 Sectional assembly permits as many valves in unit as desired.

3 Inverted cone in valve gives maximum space for flow when valve is open, and seats more firmly under pressure.

4 Left-hand threading on cast-iron guide plug makes it easy to drill out for deeper drilling.

Write for Literature

Howard Smith Co.
2412 Railroad at Sawyer St.
Houston, Texas

Heppenstall

A better steel for bits and jars has never been made

Diamond "H" Bit and Jar Steel for cable tool and Fish Tail Bits

HEPPENSTALL
FORGE AND KNIFE CO.
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St. Louis, Mo.
Milwaukee, Wis.
Los Angeles, Calif.
Fort Worth, Texas
San Francisco, Calif.
Denver, Colo.

vania in some of the methods employed.

The depth of the wells ranges from 100 to 600 feet, depending upon their location. The sand is not unlike other fields producing a similar grade of oil. The first production was obtained by digging a pit directly over a large seepage, but the innovation was not successful.

At 300 feet out in the ocean, the depth of the water is approximately 20 feet, making it impractical to attempt drilling much beyond that limit. The bottom is treacherous and the cost of building piers cannot be offset by the quantity of crude produced.

A 10 or 12-inch hole usually is started. It is necessary to run two water strings in most of the deeper wells. The bottom string shuts off the water above the main oil sand, and no perforated pipe is used. The wells produce from tubing run to a point below the top of the oil sand. If production was found at a much deeper level, the operation of the field would be an economic impossibility.

Storm Damage

The field has been greatly damaged by the loss of a large number of wells. Storms have torn out most of the piers and salt water has entered the oil sand from these old wells. In the field's heyday there was an almost unbroken line of piers leading from the beach. Now not more than half a dozen remain. Those now standing are in poor condition and their collapse may be expected at any time.

The array of derricks gives the visitor the impression that the primary object of the entire layout is to pump water from the ocean rather than oil from the ground. They are of every imaginable height, ranging from 15 feet in the older part of the field to possibly 50 feet in the newer section. Signs are conspicuously posted, telling the visitor that he is walking along the piers at his own risk. From the appearance of the collapsed piers, there seems to be ample reasons to doubt the stability of the improvised platforms.

The most picturesque figure in the miniature field probably is Charles Olds, who has worked on the wells since he was 10 years old. His father was a driller in the field and he has drilled many of the wells himself. He is superintendent, lease foreman, pumper and roustabout on one of the leases, and knows by memory all the wells in the western part of the field.

Total production to date, of the Summerland field, is about 2,650,000 barrels. The average yearly production has been 65,000 barrels. In 1899, the field reached a peak production of 208,000 barrels.

The value of the Summerland field does not necessarily lie in the quantity of the oil produced. It is one of the smallest producers in the State. Its unique location attracts every oil man who passes it, thousands of large operators having stopped to closely examine the reasons why a field should be located in the ocean. It is so radically different from other fields that the large operator wonders how it can be operated at a profit. With a refinery in the field eager to buy the crude, the owners of the leases are reluctant to abandon their operations, although it seems only a matter of time until such a course will become necessary.

An important wildcat is being drilled just north of the field, but another compact oil sand has not been found.

East Burbank Well Flows 1072 Barrels

Tulsa.—Gypsy Oil Company's No. 3, in the northeast of the northeast of the northwest of section 28-27-6, along the east edge of Burbank field, Osage County, found the Burbank sand December 21 at 2912-65 feet, and flowed 536 barrels in 12 hours while drilling ahead.

Other new results of play in this sector during the past week is seen in Peters Petroleum Company's No. 2, in the southeast of the southwest of the northwest of section 26-25n-6e, which made 445 barrels the first 14½ hours December 21 after being shot with 160 quarts in Bartlesville sand pay found at 2107-70 feet.

B. L. MOORE

B. L. (Dinty) Moore, electical engineer and smiling lion tamer of the Humble Oil & Refining Company, recently returned to Houston from the jungles of West Texas, dragging an eight-foot mountain lion by the tail. He claims that he killed the animal with his trusty rifle. Bink Manning of the same company, who was also on the hunt, claims, however, that the lion was killed otherwise. Bink says Dinty walked upon the lion before he realized the fact, and in running back up the mountain, the lion was exhausted in his attempt to catch up with the then unarmed Dinty.

PHILLIP MAVERICK
PETROLEUM GEOLOGIST
Rust Bldg.
SAN ANGELO, TEXAS

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25 Broadway
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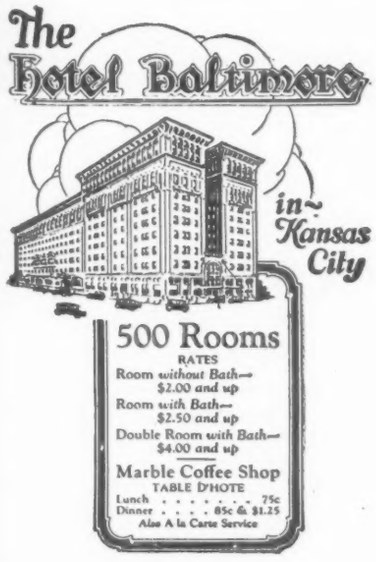
JOHN F. WEINZIERL
CONSULTING GEOLOGIST
ADVISOR ON GEOPHYSICAL INSTRUMENTS
619 Petroleum Bldg., Houston, Texas

PATENTS
Patents Obtained, Trade Marks, Patent Causes
JESSE R. STONE
Formerly Assistant Examiner
United States Patent Office
Andrews, Streetman, Logue & Mobley
12th Floor Union N. Bk., Houston, Tex



Prospects of Production In Rooks County, Kansas

Wichita, Kansas.—Prospects for new production in the vicinity of the Vickers Petroleum Company's recent Rooks County, Kansas, strike showed up favorably last week when Tadlock's Leiker 1, in the northwest of the northeast of the northeast of section 26-13s-16w, Ellis County, showed oil when sand was topped at 3141 feet. On December 21 the 5-3/16-inch pipe was being run preparatory to drilling in.

Vickers Petroleum Company's discovery well in this area is located in the southeast corner of Rooks County, while the new prospective producer of Tadlock, independent operator, lies to the south, near the Saline River, and just across the Ellis-Rooks County line. The Vickers Petroleum Company well has an initial yield of 150 barrels and last week was making around 50 barrels.

Creek County

Tulsa.—Independent Oil & Gas Company's Wolfe 4, in the northeast of the southwest of the northeast of section 18-14n-10e, Creek County, flowed 65 barrels of 38 gravity crude December 21 from Wilcox sand topped at 3421 feet and entered to 3444 feet after being shot with 10 quarts. The Independent Pipe Line had made connections for running the oil.

Twin States Oil Company's Barnett 1, in the northwest of the northeast of the northwest of section 15-15n-8e, Creek County, had the Dutcher sand at 3204-14 feet December 20, and was shut in awaiting connections of the Oklahoma Natural Gas Corporation after showing a 9,500,000 cubic foot gas flow.

Amerada Dividend

Tulsa.—Directors of the Amerada Petroleum Corporation last week met and declared the regular quarterly dividend of 50 cents per share to stockholders for the fourth quarter of 1927.

Bulletin Announcement

Ingersoll-Rand Company, 11 Broadway, New York, has for distribution a bulletin describing the new type XOB belt-driven compressor unit.

This unit was designed especially for oil field work. Copies of the bulletin will be mailed on request to the company.

THE FT. WORTH LABORATORIES

Field Gas Testing. Analysis of oil field brines, gas minerals and oil. Sell Thermometers, Hydrometers and Laboratory Glassware
F. B. Porter, B. S., Ch. E., Pres.
R. H. Fash, B. S., Vice-President
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WEST TEXAS
County Maps
Combination Maps
Descriptions and prices on application.
HEYDRICK MAPPING COMPANY
Wichita Falls, Texas.

IDLE, PORTABLE SOUTHWESTERN ABSORPTION PLANTS
priced to move. Detailed plans from which your local steel works can build refinery and gasoline plant equipment to meet your needs. W. F. PYNE, 909 So. Ardmore Ave., Los Angeles, Calif.

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Plant
is NOT expensive

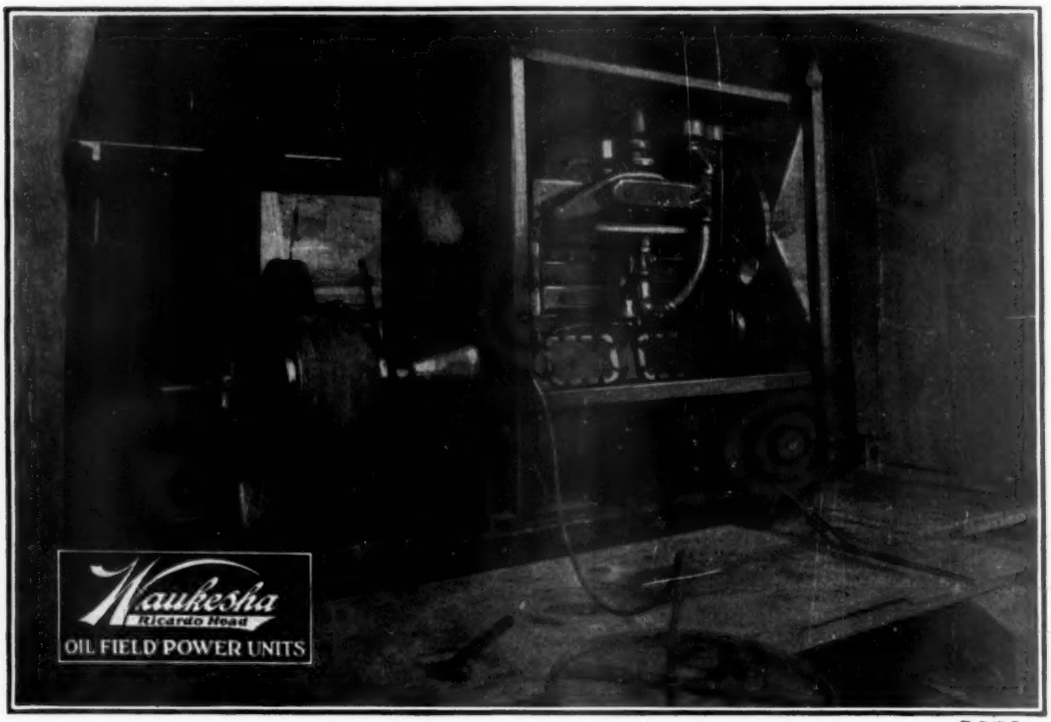
Operators usually can arrange a Tret-O-LitE plant, using equipment already on the lease. No heavy initial investment—no expensive equipment to stand idle when need for large treating capacity has passed.

The Tret-O-litE method is the fast, economical and THOROUGH method of recovering oil from emulsions.

WM. S. BARNICKEL & COMPANY
St. Louis, Mo.

Tret-O-litE

A Waukesha Oil Field Power Unit on Drilling Rig



P-767-L

Solution of Oil Production Problems

Oil drillers and producers throughout the world have found Waukesha Oil Field Power Units invaluable for drilling and pumping. During the past year the demand for Waukesha Power Units has quadrupled. Their low initial cost, unfailing day in and day out reliability, economy of fuel and water, and ready portability have made them as great a success in Baku or Columbia, as in Seminole or along the Gulf Coast.

During the past two years Waukesha Oil Field Power Units have been adapted to cable tool drilling, supplementing a long, successful record in rotary drilling to which they were first applied. For driving oil, water and mud pumps or air compressors for "Gas Lift" no more satisfactory power is available. For economy they are unusually desirable in arid country where water is scarce and fuel expensive, for they are designed to run with "waste gas" from adjacent wells. Write for Bulletin No. 629, describing the complete Oil Field Power equipment which we build.

P-797-L

OIL INDUSTRY EQUIPMENT DIVISION

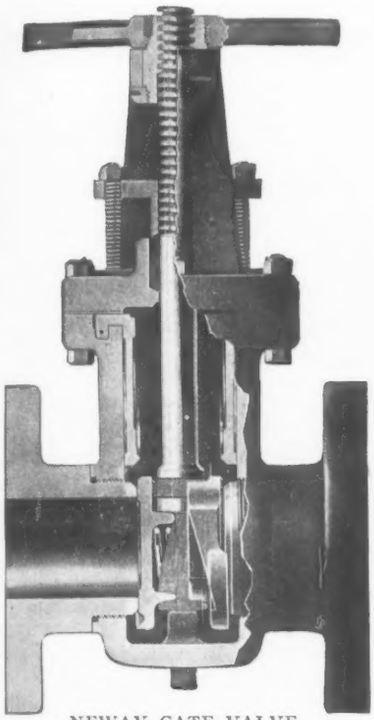
WAUKESHA MOTOR COMPANY

Waukesha Wisconsin

New York	Tulsa	Houston	San Francisco
8 W. 40th St.	C. F. Camp Co.	Portable Rotary Rig Co.	C. A. Watts

Exclusive Builders of Heavy Duty Gasoline Engines for Over Twenty Years

NEW EQUIPMENT, CATALOGS, BULLETINS, BOOKS



NEWAY GATE VALVE

Neway Gate Valve

THE KELLY COMPANY

The Kelly Company, Chicago, is putting on the market a new valve called the Kelly Neway Gate Valve.

Features of the valve, according to its manufacturers, are self-cleaning seats, positive valve disc protection when open, the use of replaceable inserts and seats, and the adaptability of a standard body design to any type of service by the use of the proper insert-screw, flange, hub or spigot.

Each time the valve is operated a reciprocal scraping of moving parts takes place that removes all scale.

Removable and replaceable inserts take the place of seat rings.

It is said that the body and bonnet of the valve are indestructible and therefore need never be removed. Packing may be replaced under pressure, and all operating or wearing parts may be replaced without removing the valve from the line.

Additional information will be supplied on request to the manufacturers.

Lubricated Valves Are Becoming More Popular

San Francisco. — Merco Nordstrom Valve Company has recently announced receipt of an order for several hundred lubricated valves of various sizes for a company in Chile. The shipment was made by way of San Francisco. A number of other large orders for lubricated valves have been received by the company during the past 30 days.

Vertical Compressor

CHICAGO PNEUMATIC TOOL COMPANY

The Chicago Pneumatic Tool Company, 6 East 44th Street, New York, announces a new compressor for use in air and gas lift work. The outfit is known as the Simplex Vertical Compressor, Type V.

The unit is a vertical, double-acting, single or two-stage compressor mounted on a common base with and driven by a two-cylinder oil or gas engine of the four-stroke-cycle type. A single crank-shaft with two engine throws and one compressor throw drives the compressor directly.

In the two-stage units tandem construction is used, an open tandem piece being interposed between the high and the low pressure cylinders. The intercooler is mounted on a bracket attached to the frame or can be mounted in any convenient location.

The driving engine of the oil driven unit is a CP M.W.M. Benz Type RH. 40Z Diesel engine. It is of the vertical, four-cycle, high-compression, solid injection type; is single-acting, employing the trunk type of piston.

The unit is self-contained, adapting it to all localities.

The gas engine driven unit has found wide application in the oil fields where there is a plentiful supply of gas. The driving engine of the gas engine driven units is similar to the oil engine in construction and is an adaptation of the oil engine to gas fuel.

The wide range of cylinder sizes, all of which are interchangeable, adapts the units to widely varying conditions or to work of an experimental nature such as is encountered in connection with the flowing of oil wells by compressed gas.

The base or crank-case of the outfit is of heavy box construction, well ribbed and crossbraced. Sides are deep and the flauges wide. The base contains bored main bearing housings. Housings are accurately bored. The lower part of the base forms a reservoir for the lubricating oil.

The frame is a one-piece casting of the box type.

The crank-shaft is an open-hearth steel forging. Throws are 90 degrees apart and each is counterbalanced.

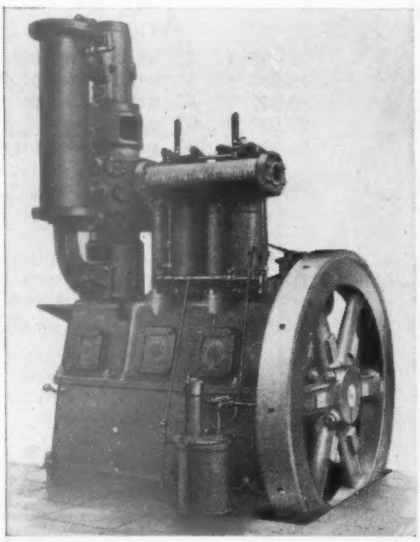
Oil passages are drilled in the throws to feed oil to the crank-pins.

The connecting-rod is an open-hearth steel forging of the open fork end type.

The crosshead is a one-piece box type casting.

Walls of the air cylinder are sufficiently thick to permit of two reborings. Water jackets surround the barrel.

Simplate inlet and discharge valves are used in all cylinders.



NEW CHICAGO PNEUMATIC VERTICAL COMPRESSOR

The intercooler used on the two-stage compressors has a riveted steel shell with riveted flanges. Into this shell are nested seamless steel boiler tubes whose ends are expanded into steel tube sheets which are bolted to the shell flanges. Baffle plates placed at frequent intervals compel intimate contact of the air with the tubes, assuring high cooling efficiency.

More detailed information will be supplied on request to the company.

Portable Compressors

GARDNER-DENVER COMPANY

The Gardner-Denver Company, formerly the Denver Rock Drill Manufacturing Company and the Gardner Governor Company, have added a line of portable air compressors in five sizes to their line of products.

The five sizes will meet all requirements within the scope of a portable. The following table shows compressor bore and stroke in each model:

Class 110, 2 cylinders, 6-inch bore by 4½-inch stroke.

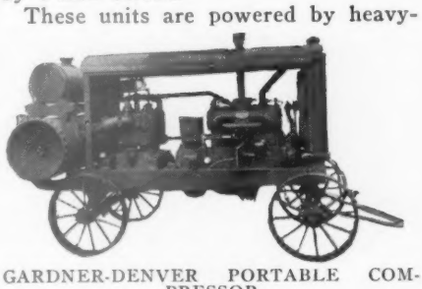
Class 160, 2 cylinders, 7-inch bore by 6-inch stroke.

Class 220, 2 cylinders, 8-inch bore by 6-inch stroke.

Class 250, 2 cylinders, 9-inch bore by 6-inch stroke.

Class 310, 2 cylinders, 9¼-inch bore by 6-inch stroke.

These units are powered by heavy-



GARDNER-DENVER PORTABLE COMPRESSOR

BUY USED PIPE

And Save the Difference

75,000	f	2"	used line pipe	15,000 ft. 5-3/16"	used casing
75,000	ft	3"	used line pipe	15,000 ft. 6-5/8"	used casing
30,000	ft.	4"	used line pipe	5,000 ft. 8-1/4"	used casing
20,000	ft.	6"	used line pipe	5,000 ft. 10"	used casing
10,000	ft.	8"	used line pipe	1,000 ft. 12½"	used casing

Three complete strings Standard Drilling Tools.

150 tons 60 lb. No. 1 relaying rails.

We buy abandoned pipe lines and oil wells. If you have any to sell, communicate with us before you dispose of them.

BRANCH STORES

Wichita Falls, Holliday, Vernon, Brechenridge, Texas

Eastern Headquarters

Butler, Penna.

Keystone Pipe & Supply Co.

HOLMES BUILDING
FORT WORTH, TEXAS

You'll Take No Chances With Your Production In 1928

IF you specify Alten's O. K. Pumping Jacks. Their construction, operation and dependability have already been proven for you. Forty years of manufacturing experience, directed especially to oil field requirements, stand behind every O. K. Pumping Jack.

Ask Your Supply House, or Write.

Alten's Foundry & Machine Works

Established 1889 LANCASTER, OHIO

Leadership

The leadership of Steelex Balls and Seats is based on the fact that a better ball and seat has never been made for use in wells where excessive sand is present. Therein lies the real economy of its use.

THE CHARLES N. HOUGH MANUFACTURING COMPANY
FRANKLIN, PENNA.

Products that cut down your underground overhead.

duty, four cylinder, Buda engines. Each size is rated at a generous margin above the compressor requirements. A high tension magneto with impulse starter, and a speed control governor are standard equipment.

Two cylinder, vertical, single acting "Gardner" compressors are used. Suction and discharge valves are of the Duo-plate type.

The engine drives the compressor through a flexible, quickly detachable coupling.

The frame is a single piece steel casting with the air receiver and gasoline tank mounted on an extension.

Further information can be had by the company, on request, by addressing The Gardner-Denver Company, Quincy, Illinois.

Oil Field Radiator

YOUNG RADIATOR COMPANY

The Young Radiator Company, Racine, Wisconsin, is marketing a radiator especially adapted to oil field work for cooling Diesel oil and gas engines, for compressors of various sizes, and for internal combustion engines, either gasoline or Diesel type.

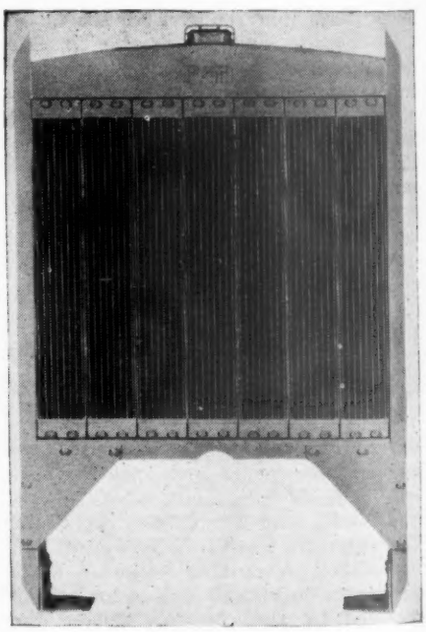
The radiator is made in sizes ranging from the smallest unit, three or four horsepower, up to 1000 horsepower or more.

The illustration shows the Y-4 sectional type, especially recommended for use where water is scarce or where alkali conditions are encountered.

In case of accident where the machine cannot be stopped for repairs, the section can be removed quickly, the water transfer holes plugged, and the machine will carry on until a new section can be procured and replacement made.

Heavy materials are used in construction of the radiator.

More specific information will be mailed on request to the company.



YOUNG RADIATOR

Bulletin Announcements

Portland Cement Association has recently released a booklet called "Concrete in the Petroleum Industry," which can well be called a cement handbook.

The publication is divided into four parts, as follows: Part one, fundamentals of making concrete, design of concrete mixtures, and materials for concrete; part two, concrete and Portland cement in the oil fields, cementing oil wells, and reservoirs and tanks; part three, concrete in refineries, special uses, recreational facilities, and concrete products; and part four, specifications for refineries and derrick foundations.

There are 47 pages in the booklet and a number of illustrations made from field scenes.

Copies of the booklet will be mailed from any branch of the Portland Cement Association. For the Mid-Continent, the nearest branch office would be Oklahoma City, or Dallas; San Francisco or Los Angeles, for the West Coast, and Columbus, Ohio, for the Eastern district.

Waukesha Motor Company, Waukesha, Wisconsin, has published bulletin No. 629-B which illustrates a number of applications of Waukesha motors driving various kinds of oil field equipment.

The company has worked out a complete specification sheet for oil field installations.

Copies of the bulletin can be had by request to the company headquarters.

Wilson-Snyder, long stroke, high pressure, balanced valve slush pumps, are the subject of a new leaflet published by Wilson-Snyder, Pittsburgh, Pennsylvania.

Copies of the leaflet can be obtained upon application to the company.

Sullivan Machinery Company, 122 S. Michigan Avenue, has released two bulletins describing new drilling equipment:

Bulletin 81-0 is devoted to Sullivan auger rotators, class "H-8." Sullivan auger rotators are for use in drilling very soft ores, soft or broken rock, hardpan, frozen ground, etc. When it is desired to save expense of buying special drills, the auger may be equipped with a hollow piston, and used with hollow drill steel and a water attachment for underground work.

Bulletin 81-Q describes Sullivan rock drills. Rotator rock drills are intended for medium heavy rock drilling work on down holes where the drill is held by hand, or in very hard rock for deep holes, or for other severe drilling conditions in open cut construction work.

Copies of the bulletins will be mailed on request to the company.

Frank B. Carr, vice-president of Leland Truck Equipment Company with headquarters in Tulsa, is moving to Dallas to assume charge of the Texas business of the company. The business of Leland Truck Equipment Company in Texas has grown to such proportions that it has been deemed necessary to have an official of the company in personal charge. The Dallas office is maintained at 1916-18 Canton Street and a full line will be carried there and also service will be maintained in the Panhandle area and in West and Southwest Texas fields.

L. J. Bell, secretary-treasurer of the American Tank Company, was a business visitor in Tulsa last week, from Oklahoma City, where he makes his home.

A Message From
UNDERREAMER HEADQUARTERS
"We can furnish any type of rotary underreamer you desire"
GRANT OIL TOOL COMPANY
2042-44 EAST VERNON AVENUE
LOS ANGELES, CALIFORNIA

BRONZE TO BRONZE
Is the Reason
DART UNIONS
Give Service
Try them
E. M. Dart Mfg. Company
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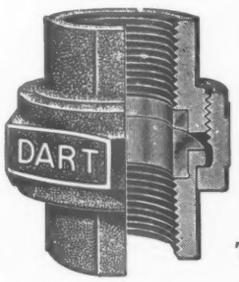

Jones Sucker Rods have pleased for Thirty Years.
S·M·Jones Company,
TOLEDO · OHIO
Tulsa Office: 602 Wright Buildin:

DUNN TOOLAGRAM

prove it — at no expense

We claim that the "Flyer" Type Dunn Super-Safety Elevator is fast and safe and we want to prove it to every user.

We will send you one or more of these elevators for trial, transportation charges prepaid. If they are not faster, safer and generally all-around better than any elevator you have ever used, return at our expense. There is no further obligation involved.

Supplied in all tubing and drill-pipe sizes.

DUNN
MANUFACTURING COMPANY
OXNARD, CALIFORNIA
Mid-Continent Branch Warehouse-215 E. Archer St. Tulsa, Okla.
Export Sales Office ..... 150 Broadway, New York City

SQUEAKS FROM THE BULL WHEEL

THE WILDCATTER

Old Bill, the driller, chews his cud
Of Mail Pouch, as he starts to spud,
His big hole wallop shakes the ground
A half a mile or more around.

And on his tour, Big "Wire Line Mac"
Hitches her on and bawls the jack,
He sets her out in number three
And shakes the derrick like a tree.

There's music in that thundrous sound,
The "big hole wallop's" mighty pound,
There's music in a walking beam
That makes an old time oil man dream.

And sometimes on a still dark night
With "yellow dogs" to make a light,
I've watched 'em wrap a rag line hitch
And sail right on a-cuttin' ditch.

This runnin' tools, I think it's grand
To make the hole, and look for sand,
And knowin' you can't never tell
Which wild cat's goin' to make a well,

And when at last you do get oil
And you get paid for your hard toil,
And you're plumb rich, how good
'twould seem
To hear the squeak of a walkin' beam.

Finale

And if I reach that land up there
I'd like to wild cat 'round somewhere,
And once or twice each eon or so
Just get the grease and watch her flow.

—Clyde M. Becker.

Bimbo—What's them carbonate marriages I heard the preacher tellin' 'bout over the radio?

Bozo—Hm, don' you all know? Them's them marriages that all fizzles out.

A little jewish boy was standing on a street corner, making the welkin ring with great sobs and exclamations of distress. About him there soon gathered a large crowd of wouldbe sympathizers.

"What is the matter, my little man?" asked one of the crowd. "Are you lost?"

The boy ceased his wailing. "I am," he answered, "I'm lost. Won't you all take me to Goldblatt's Cut-Rate Tailoring Shop, at 234 Rosen Street, which has just opened up a marvelous sacrifice sale on men's pants and suits at fifty per cent below cost."

He: "You are a little Fairy, may I hold your Palmolive?"

She: "Not on your Lifebuoy, your head's solid Ivory."

He: "This is where I get the Colgate."

She: "I Woodbury that joke if I were you."

The dear old lady was late at church and entered as the congregation was rising to sing.

"Dear me," she said, with a smile, "don't get up on my account!"

An aspiring dramatist called upon the producer to whom he had sent his first work. Greeted with a curt nod and a few brief words, he addressed the theatrical "big noise."

"You've had my play for more than three weeks now," he said, "and the last time I called you said you hoped to find a suitable use for it."

The producer frowned. He was a very busy man.

"So I did," he began suavely. "And I'll use it as promised. We're starting a new play next week, and I'll tell you what I'll do. I'll tear up your play and we'll use it in the big snow scene."

A stranger who had been in a small town but a few days lost a very valuable dog. He went to the newspaper office and wrote an advertisement to be run that night offering a twenty-five dollar reward for the return of the dog. Evening came, and no paper appeared. Finally, anxious to see his "ad," he went down to the office of the newspaper, and found only the janitor there. "Isn't there going to be any paper this evening?" he inquired. "No, suh," replied the floor-sweeper. "No paper today. Ev'body's out huntin' fo' dat dog."

Mrs. Knocker beamed patronizingly on Mandy, the new cook.

"I'm going to get you another chair for the kitchen, Mandy," she said.

"But, mam, I'se goin' need no moh chair," said Mandy.

"But, you have company some evenings, don't you?"

"Yessum, yessum," sputtered Mandy, "but all ob 'em is gentlemums!"

The doctor having recovered his fur-lined garment was reluctant to proceed against the culprit. "But, sir," said the policeman, "it was a case of larceny, wasn't it?"

"Not exactly," returned the doctor, "rather a case of misunderstanding, I think. You see, I told my patient he must take something warm immediately, and on his way out he took my overcoat!"

No rug on the floor—happy. Hundred dollar rug on the floor—dissatisfied. Five hundred dollar rug on the floor—jealous of the Joneses. Thousand dollar rug on the floor—five hundred dollars in debt.

A young man who had taken his Ford out on a cold wintry day was covering the engine with a blanket.

Little Boy (looking on): "Don't cover it up, Mister, I saw what it was."

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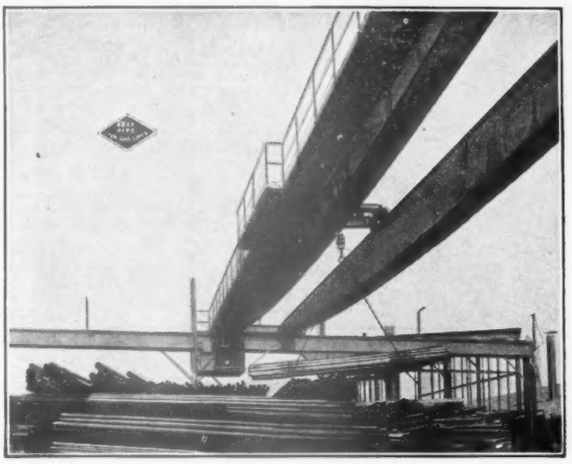

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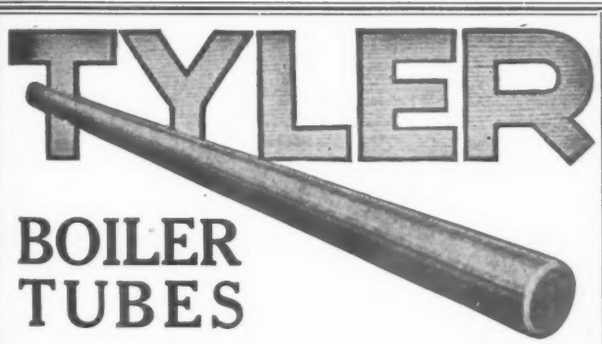

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